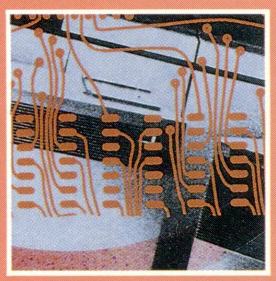
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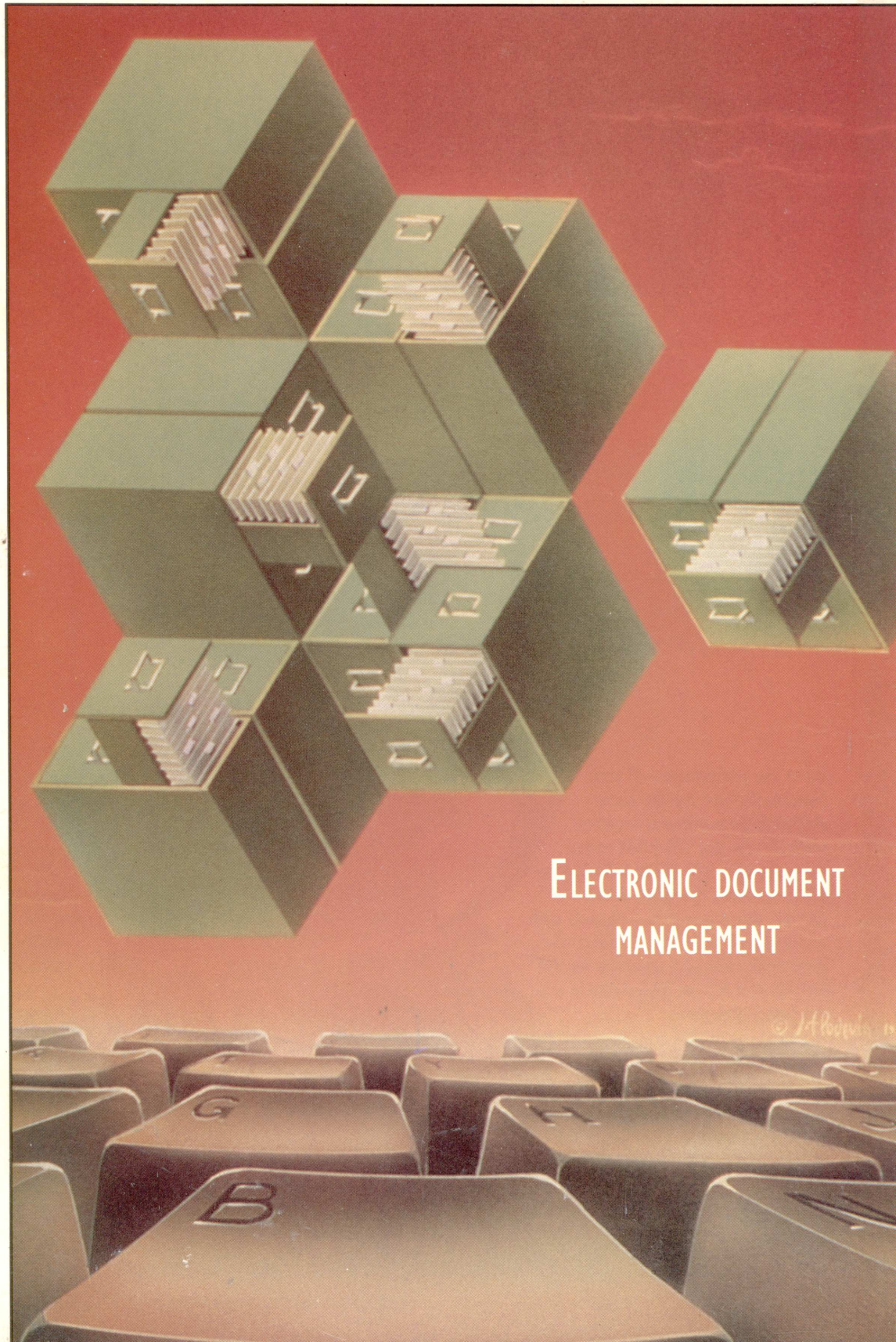
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- Doing Business With EDI
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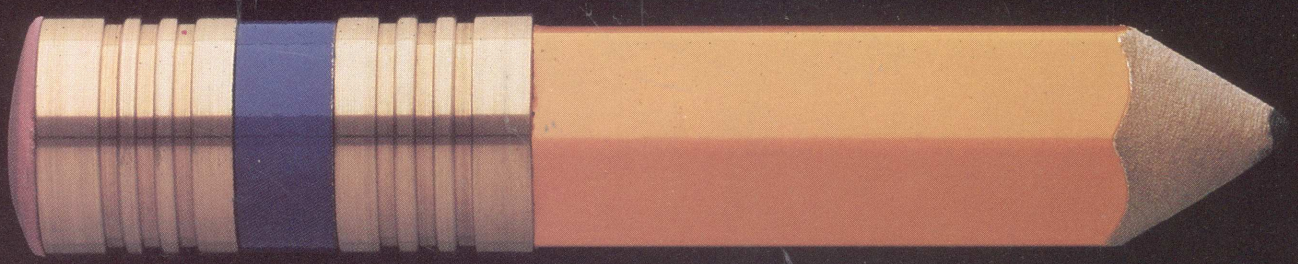
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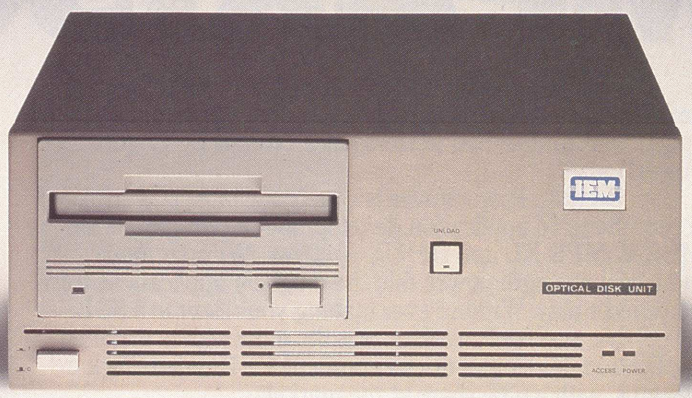
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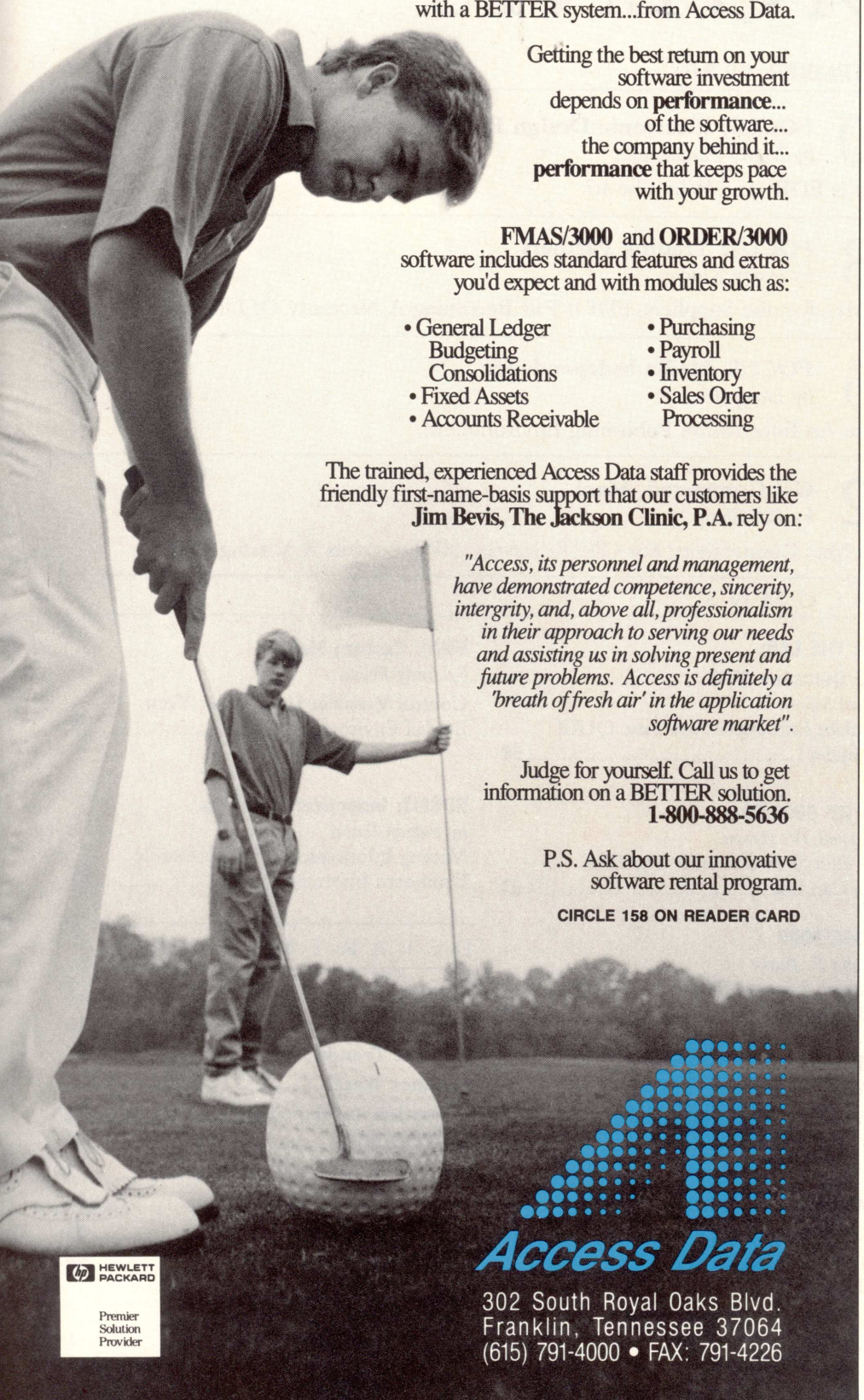
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HP PROFESSIONAL ISSN 0986145X is published monthly by Professional Press, Inc., 101 Witmer Rd., Horsham, PA 19044. Subscriptions are complimentary for qualified U.S. and Canadian sites. Single copy price, including postage $4. One year subscription rate $30 U.S. and Canada: $60 foreign. All orders must be prepaid. Second Class postage paid at Horsham, PA 19044, and additional mailing offices. POSTMASTER: Send all correspondence and address changes to HP PROFESSIONAL, P.O. 616, 101 Witmer Rd., Horsham, PA 19044.

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CIRCLE 141 ON READER CARD

Beyond The Iron Curtain

I've been writing editorials for more than a decade, and I've always followed a personal guideline of commenting *only* on technology issues. Some would consider me an expert on these issues, others might say that with over 25 years of computing experience I have simply grown old and wise. Nevertheless, I've adhered to this guideline because I feel it's irresponsible to use this space to air my views on topics about which I couldn't be called an expert. This month, I'm breaking my rule to discuss an issue I feel very strongly about. This is a personal story.

I recently returned from a visit to the Soviet Union. During my stay there, I was wonderfully surprised at the friendliness and openness of the Soviet people and, at the same time, very disturbed at their poor living, economic and social conditions. Although the people were a delight, nothing could overcome the stark reality of a society *without enough* — without enough housing, without enough food, without enough quality of life. I make no judgements here, simply comparisons with the rest of Europe and the United States.

Housing is a continuous problem in the Soviet Union. There are no obvious homeless, but there are long waiting lists for apartments. Many people have to share apartments until one becomes available for them. When they do get their apartment, it's usually small, by our standards, and often of poor quality. The concrete cracks and breaks away from new buildings before they're even occupied, and they all look old before they're finished.



Comparisons between the old (the pre-revolutionary, Czarist period) and the new (the Stalinist era and its aftermath) are particularly stark. The heart of Leningrad, for example, contains many fine buildings, each with a distinctive classical look — much like those of any major European city. The city's outskirts, however, are layered with seemingly endless waves of monotonously-architectured, poorly-built and unsightly housing projects.

In Soviet food stores, bread and ice cream are plentiful, but meat, chicken, fruits, vegetables and simple salads are almost impossible to find (except from street vendors — otherwise known as the black market). In some towns, the black market has become almost legitimate. In Volgograd, for instance, there is a farmers market that rivals some of its U.S. counterparts, offering a wide variety of produce, some of good quality, some poor.

Soviet department stores are dingy and dark. Merchandise is displayed pipe-rack style, and the goods are of very poor quality. The availability of a product is inversely proportional to the length of the lines waiting to buy it. We saw long lines for women's cosmetics, which were in short supply, but no lines at all for fake fur coats, of which there were 25 (all identical). Soviet merchandizers haven't learned that elemental lesson of seasonal marketing: No one wants a fur coat when it's 92 degrees outside.

One reason for the poor quality goods and lack of merchandise is the Soviet monetary system. The Soviet unit of currency is the ruble, which is a "soft" currency, not convertible into any other. "Hard" currency, like dollars or pounds, is much sought after. Although it's illegal for a Soviet citizen to own dollars, most street businesses (including the taxis) ask for dollars first and then, reluctantly, take rubles.

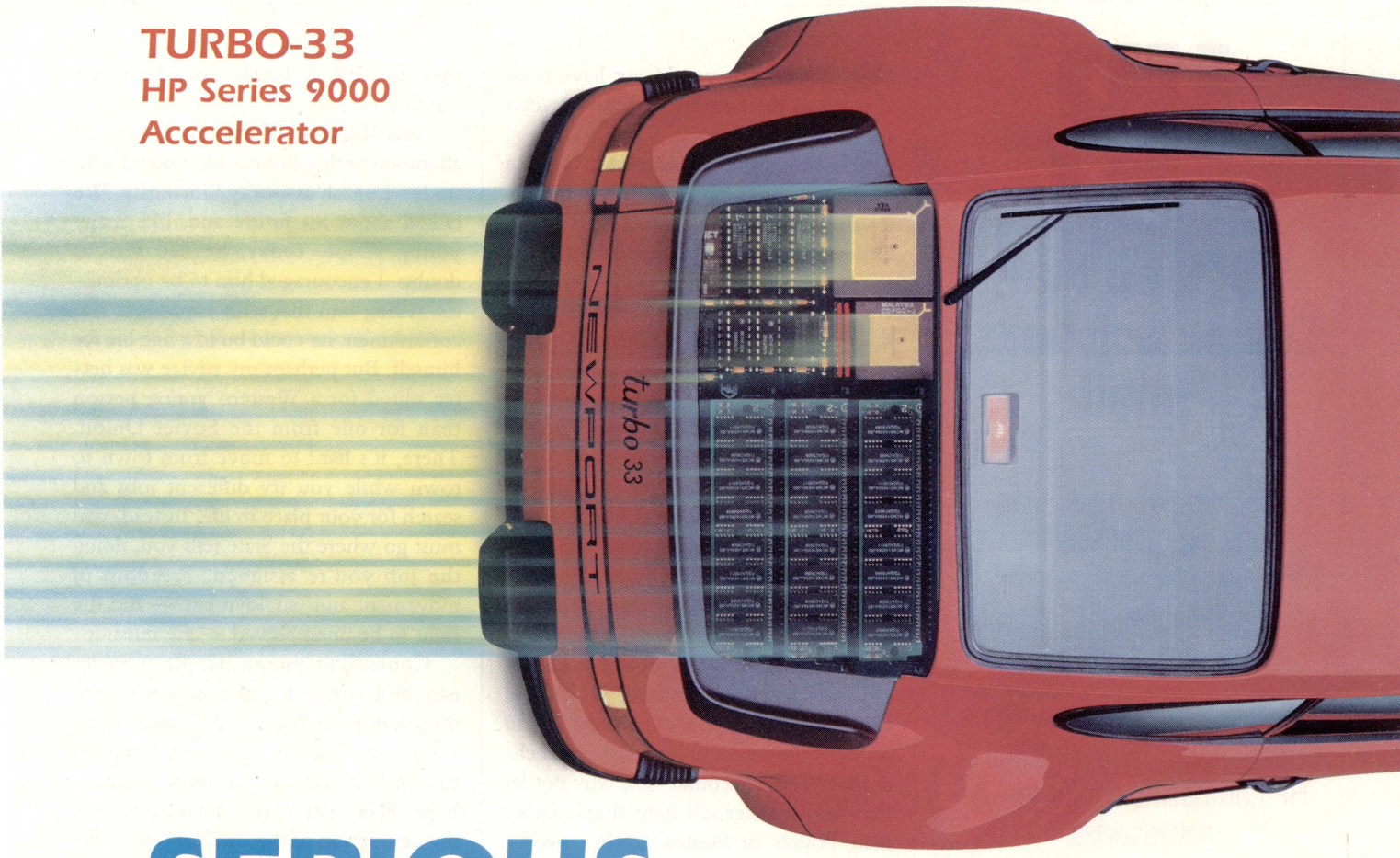
Soviets make about 300 rubles a month, but pay only about 15 rubles a month for an apartment. They can buy about 20 loaves of bread for one ruble and have a telephone in their home for about two rubles a month. A Soviet citizen can house, feed and clothe himself with his monthly salary. But, the ruble, which can be converted only under very controlled circumstances, is actually worth only about 10 cents. So, in hard currency, the average Soviet makes about $30 a month — not enough to afford any Western goods. Thus, the economy is effectively closed. Soviets are forced to buy only Soviet goods, and Western competition is ruled out.

As for quality of life (always a subjective calculation), the Soviets may have a world class ballet, opera and circus, but these can't overshadow the brown and gray cast of everyday life. People don't smile much. On the buses, which are packed tightly during rush hour, their faces wear a uniform expression, one somewhere between boredom, anger and despair.

Children offer the only break in the monotony. It isn't unusual to see a father and son walking hand in hand, and the little girls often wear big, brightly-colored ribbons in their hair. The family is a strong force in Soviet life. Whole families go places together, and many generations are likely to live together. The children go to school, the parents work, and the grandparents help out with younger children and do the shopping (which can take a lot of time because of the long lines).

Most Soviets have little contact with the West and are somewhat ill informed about our way of life. For instance, a guide proudly told us that almost 100 percent of Soviet families had refrigerators, while only 75 percent of all U.S. families had this appliance. However, I did notice a new openness to Western culture. For example, our Intourist (Soviet State Tourist Company) guide was reading Tom Clancy's *The Hunt For Red Oc-*

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tober, a book that would not have been allowed in the country only a few years ago.

I left the Soviet Union with a sense of sadness for the people. They are, after all, just like you and me. The Soviet Union is *not* the evil empire, and the country is *not* our enemy. In fact, the Soviets are more like us than some of our more favored trading partners. It's time for the United States to find another justification for the next stealth bomber or nuclear aircraft carrier — it can't be the Soviet Union anymore.

When we finally resolve to scrap our costly war machines, we should spend some of the billions we save to help build an infrastructure for Soviet productivity. Their inadequate computer systems are based largely on pirated PDP-11 technology. Now that the ban on high-technology sales has been relaxed, we should help them convert to HPs or VAXs instead of FUJI computers. If they lack the technology it takes to build cars, why not let Ford or Chrysler sell it to them, rather than Toyota or Honda? If they need a better air traffic control system, why not sell them ours before the Europeans sell them theirs?

The road to a stronger Soviet economy is going to be long and hard, but the rewards are a better, safer world for all of us. The first step is the agreement (on both sides) that the U.S. and Soviet Union are no longer enemies. Of course, the 280 million people in the Soviet Union won't convert to a market-driven, western-style economy overnight. But in time, we can expect a movement in this direction, albeit one with a socialist theme.

It may take years for market reforms to have a material effect on the lives of the Soviet people, but we can do things to help speed the process. After World War II, we instituted the Marshall Plan to help rebuild Europe. It's time for a plan to help modernize the Soviet Union. Tax incentives, government programs, university exchange programs, tourism and better communications (ever try to telephone into or out of the Soviet Union?) would be just a start. But they would help build a foundation for the future.

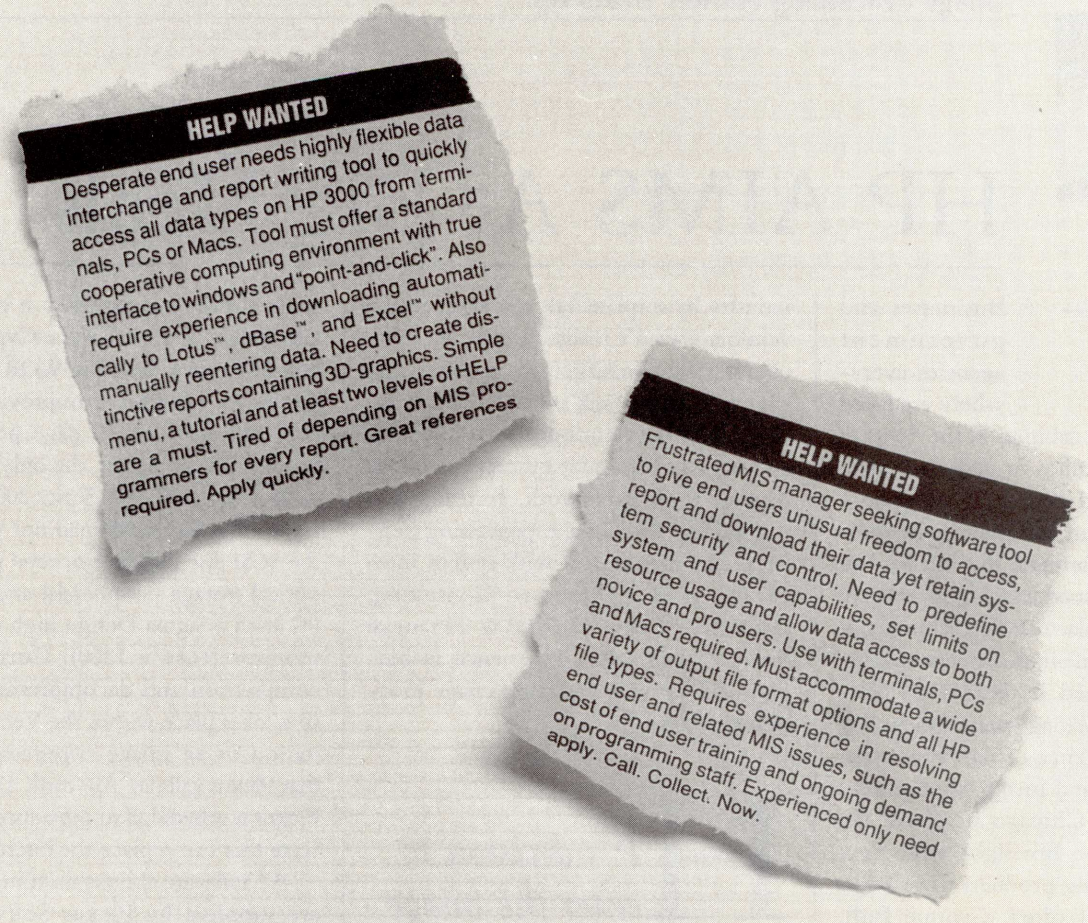
Near the close of my trip, I spent an afternoon with a 19-year-old student who studies English at Gorky University. We talked about his future and, like many young people today, he had serious doubts. I encouraged him to be optimistic, telling him that with hard work and commitment he could build a fine life for himself. But perhaps my advice was better suited for a Western young person than for one from the Soviet Union. There, it's hard to move from town to town while you try different jobs and search for your place in life. Instead, you must go where the State tells you, doing the job you're assigned. Freedom of movement and employment — and the right to be unemployed — are missing.

Counseling young people is never easy, but I tried to offer guidance until the young man finally said, "I think there is no hope." At that moment, I wanted to hug him and tell him there is always hope. Who after all could have predicted the destruction of the Berlin Wall, or the quiet revolution in Poland, or the less peaceful revolution in Romania, or more importantly, the changes in the Soviet Union that allow a Western capitalist to sit in a park and talk with a young Soviet student?

I'm convinced that if we can get more Soviets talking face to face with Americans and Europeans, we can show each side that there is nothing to fear from the other. And we can show the Soviet people that life *can* be better.

By this time, you probably know that I don't like the words "no" and "can't." I'm serving notice now that I won't accept "there is no hope." Eugene, my 19-year-old student with the world in front of you, there is always hope — I promise.





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CIRCLE 262 ON READER CARD



INDUSTRY WATCH

Peggy King

HP AIMS At Big Deals

Businesses and government agencies everywhere are faced with bulging file cabinets as the "paperless office" continues to generate, mail, copy, fax, file and store more paper documents. Microfilm and microfiche were an attempt to eliminate this excess, but now computer-based imaging systems are beginning to replace those technologies in the fight to contain document storage.

HP introduced its HP AIMS (Advanced Image Management System) at the yearly conference of the Association for Information and Image Management (AIIM) held in Chicago in April. HP AIMS shared the limelight with new document imaging products from DEC, IBM, Unisys, Nixdorf, Groupe Bull, NCR, Sun Microsystems and Data General as well as offerings from the established imaging vendors.

HP AIMS, along with imaging systems from NCR, AT&T, Sun Microsystems and Amdahl, derives some or all of its software component from the XDP (Extended Data Processing) software sold by newly reorganized Plexus Software, a reincarnation of Plexus Computer.

Changes in the booths at the AIIM show reflect rapid changes in the document imaging industry. In the early 1980s, AIIM was a micrographics trade show — strictly microfilm and microfiche vendors. The availability of high-capacity optical storage systems gave birth to electronic storage and retrieval systems.

By the 1990 AIIM show, most of the major systems vendors had their own booths, and the proprietary vendors were announcing ports of their imaging software technology to various UNIX platforms.

The move to open systems caught the industry by surprise. HP and other major vendors weren't ready to offer the type of document management systems that large customers, such as banks, credit card companies, insurance agencies, hospitals and large government offices, needed to manage their paperwork. Instead, they teamed up with image processing vendors, like Plexus, and with system integrators, such as Andersen Consulting, Grumman Corp. and TRW Financial Systems, firms with experience in bidding and carrying out large image processing systems.

HP's decision to enter the image processing market was a short-term necessity rather than a long-term strategy.

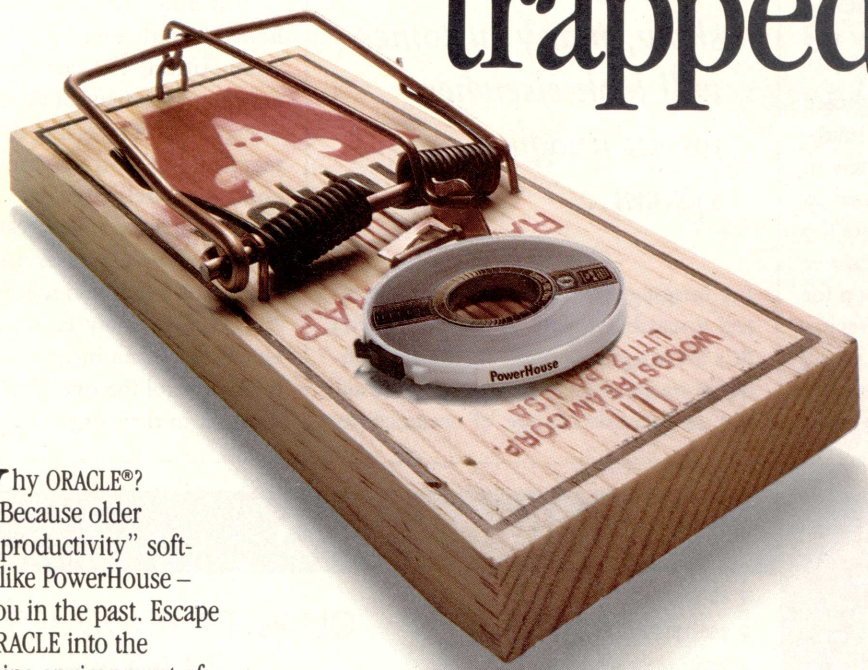
A typical high-volume image processing system includes large optical storage jukeboxes, OCRs, fast scanners, fast laser printers, LANs, UNIX minicomputers used as servers, high-end PCs with high resolution monitors as display stations and hundreds of thousands of dollars worth of customized workflow management software designed and delivered to the system integrators. You might conclude that HP's strength in peripherals would give the HP AIMS a special advantage in the image processing market. Guess again. ...

"Phase Zero" of HP AIMS (the portion that was deliverable by the time of the 1990 AIIM show) uses the same peripherals that Plexus delivered as part of its turnkey system when it was Plexus Computer. This includes a Cygnet jukebox with an Optimem WORM optical disc drive, a Fujitsu or Improvision scanner, and a Ricoh 40 page per minute scanner. In the booth, the only HP hardware was an HP 9000 Series 300 used as a server (the Series 800 had not yet gotten the SCSI disc interface needed to support optical storage peripherals) and a Vectra PC with a Sigma Design high resolution monitor (1664 x 1200). Currently the compression and decompression of images takes place within the Vectra display station in an image coprocessor board that Plexus calls an AIP card. This month Plexus is scheduled to introduce AIP software that can replace the board.

All software drivers used in HP AIMS are supplied by Plexus Software, but Plexus's drivers for the HP LaserJet III and the ScanJet Plus were not available until August. Plexus also is in the process of writing drivers for HP's eraseable optical storage jukebox system, but HP can't use its own optical storage devices in large image processing systems until the Series 800 minicomputers get the SCSI interfaces they need to connect to HP's optical erasable jukeboxes.

HP's decision to enter the image processing market this year was a short-term necessity rather than a long-term strategy. For HP, the price of waiting for the Plexus partnership to incorporate more HP peripherals would have meant missing the chance to bid on some big deals with its system integration partners. According to Scott McCready, an industry analyst at International Data Corp., image processing systems have about an eight month sales cycle. Even the projects that won't have imaging for another two to three years are being bid with "hooks" to image processing. For ex-

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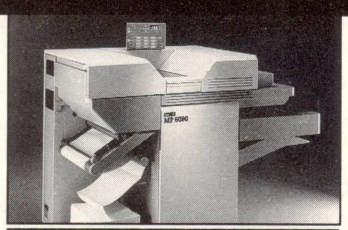
ample, Anderson Consulting is working on the Magic Project, a pilot system in Merced, CA for automating the processing of welfare eligibility claims. The system is designed for an IBM mainframe with an HP 9000 Series 800 used as a file server to a TCP/IP network with Vectra PCs. Had HP AIMS not been introduced, HP wouldn't have been able to meet the project's future requirements for scanning copies of eligibility documents and monthly reports.

Systems integrators have their choice of vendors with whom to bid on imaging projects. For example, Andersen Consulting bids these projects with seven other vendors besides HP. But despite the fact that its laser printer and scanner lines don't include high-end products for imaging, HP comes closer to offering "one stop shopping" than other major vendors do. HP has its own optical storage technology—a key component of any imaging system, the HP 9000 line offers a scalable family of servers, Vectra PCs are rugged enough to use in high-traffic image display stations, and HP offers an extensive range of connectivity products to connect its servers to the IBM mainframes found at sites that can afford consultant-delivered imaging systems. HP is already beginning to win bids. In June, Andersen Consulting announced that the Toronto registrar's office would use HP AIMS to scan and store 10 million paper documents recording births, deaths and marriages.

Unless HP introduces a low-end solution at the 1991 AIIM show, many customers will look elsewhere for an imaging system...

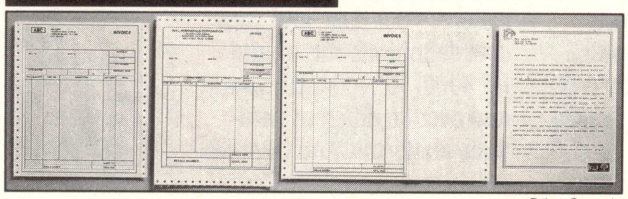
Although it offers more comprehensive high-end solutions than the competition, HP continues to miss a significant segment of the imaging technology market by failing to deliver an integrated low-end system. Currently, a consultant-delivered HP AIMS system means in vesting at least $500,000 in hardware, software and services. Unless HP introduces a low-end solution at the 1991 AIIM show, many customers will look elsewhere for an imaging system to help them control the overwhelming volume of paper in their organizations. ■

HP 3000/9000 USERS

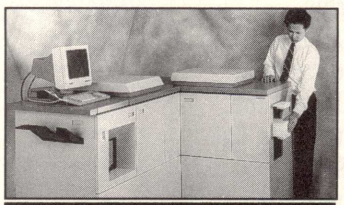


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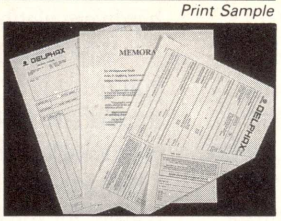
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CIRCLE 146 ON READER CARD

HP Predictive Support XL Announced For HP 3000s

Predictive Maintenance Without Operator Intervention

Hewlett-Packard has announced HP Predictive Support technology, which identifies potential hardware problems, for its Precision Architecture (PA-RISC) HP 3000 business computers that run the HP MPE XL operating system.

This software program resides on the computer and automatically monitors the operations of the system. When the software identifies a potential problem within the system's I/O, processor and memory devices, an alert is issued to both the customer and the HP Response Center so that action can be taken to avert performance problems.

Unlike other forms of predictive maintenance, HP Predictive Support XL software can run without operator intervention as a system process.

The software uses a menu-driven interface for easy configuration and administration.

HP Offers First i486 Microprocessor-Based PC

Features 19-ms Access Time

The new HP Vectra 486 PC is the first in a new generation of PCs based on the i486 microprocessor and the Extended Industry Standard Architecture (EISA).

The 25-MHz HP Vectra 486 PC is a floor-mounted PC that operates more than 33 percent faster than 33-MHz Intel 386-based PCs with up to 64 MB of high-speed system memory.

It features eight EISA expansion slots that accept 8-, 16- and 32-bit EISA or ISA add-on cards; two serial ports and one parallel port (on system board); connections on the system board for up to four flexible-disc devices and two embedded hard-disc drives; six half-height data-storage shelves, all with front access; and offers a choice of 23- or 15.5-ms access-time internal hard disc with capacity of 152 to 670 MB.

Planning-And-Control Software Available On HP 9000/800

Provides Workstation Users With Project-Management Facilities

HP and Metier Management Systems Ltd. have announced that Metier's planning-and-control software will be available on the HP 9000 Series 800 workstation family, which is based on PA-RISC technology.

The PA-RISC workstation platform is the first UNIX-based computer platform for Metier's ARTEMIS 7000 planning-and-control software product. ARTEMIS 7000 gives HP workstation users comprehensive project-management processing facilities and ready-to-run software packages, which address cost, time and resource-control requirements.

These packages can be customized to suit the individual requirements of various organizations, using Metier's ARTEMIS 7000 development language. SQL interfaces for standard databases are expected to be available in late 1990. X Window capabilities are optional.

CIMLINC Buys HP Workstations

$400,000 Agreement Provides Hardware For Development And Sales

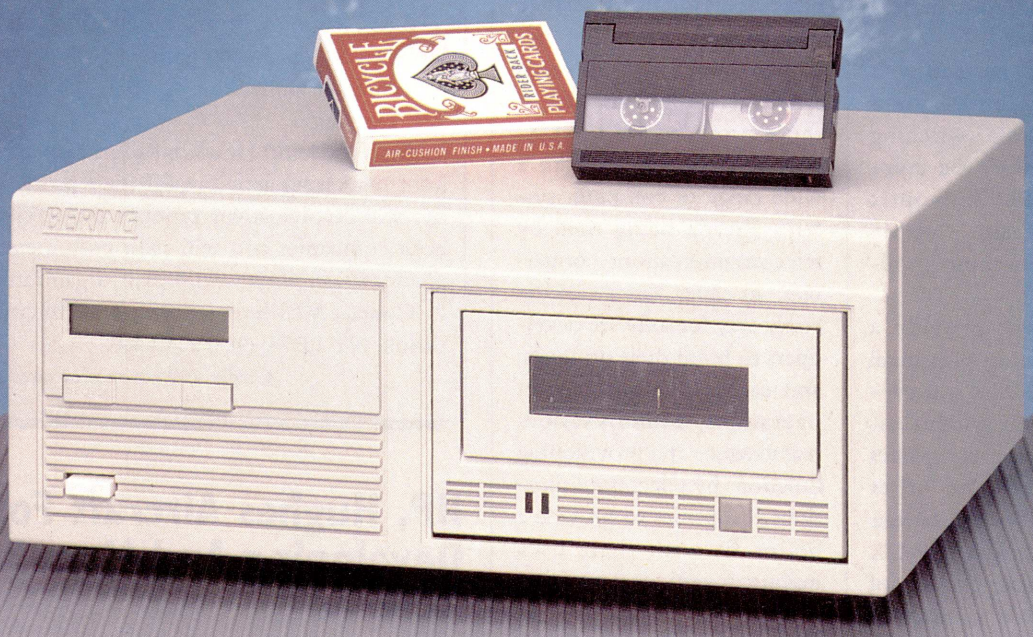
CIMLINC Inc. has purchased 25 HP UNIX engineering workstations for its sales offices and development work.

The 25 workstations are a mix of HP 9000 Series 300s and 800s, all running HP-UX. As a Premier Solution Provider, CIMLINC markets its mechanical design and manufacturing software jointly with HP's hardware.

CIMLINC provides software and services that facilitate concurrent work flow in manufacturing organizations resulting in continuous improvements in reaction time, quality and cost.

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CIRCLE 105 ON READER CARD

Northern Telecom Signs With HP

HP-UX Licensed For Use With Telecommunications Equipment

Northern Telecom and Hewlett-Packard have announced the first worldwide licensing agreement of the HP-UX operating system for use with telecommunications equipment.

HP-UX will be used with Northern Telecom's current DMS SuperNode switching systems, and with the company's S/DMS fiber-optic transmission and S/DMS broadband switching products.

HP-UX will provide a tighter integration of general purpose computers and telecommunications systems, allowing telephone companies to connect HP and other manufacturer's workstations and minicomputers. HP-UX also will facilitate the use of industry standard, third-party software on Northern Telecom's products, thus reducing development intervals, ensuring applications portability, and resulting in more cost-effective enhanced service introduction.

Key benefits of an open systems environment, such as those provided by HP-UX, include compatibility with a wide range of computer systems already being used by telecommunications companies; an easier, faster and less costly way for software developers to build their products; and easier customization of operations, administration, maintenance and provisioning functions by telecommunications companies to provide a better fit with their own unique operations network.

HP Introduces Networking Products With MPE Release 2.1

IBM Connectivity Over SNA Or X.25, Network Management Enhancements

Two new IBM connectivity products and one enhancement became available with MPE Release 2.1:

SNA/X.25 Link/XL enables HP 3000 Series 900 systems to exchange data with IBM systems over an X.25 network. This product makes it possible for a multivendor environment to standardize on X.25.

NS over SNA/XL makes it possible for NS3000/XL Network Services to run over an IBM SNA network for HP 3000-to-HP 3000 communications. If the environment is primarily IBM, NS over SNA/XL allows for standardization on an SNA network.

SNA/SDLC Link/XL has been enhanced to include NetView Alerts, link-level alerts to IBM's network management product NetView. *—Peggy King, West Coast Editor*

MCI Completes HP X.400 Interoperability Testing

Provides Customers With Interconnection Capability

MCI Communications Corp. has completed interoperability tests between MCI Mail XChange 400 and HP's X.400 products for its HP 3000 and HP 9000 computer systems.

Completion of this testing provides customers, who subscribe to XChange 400 and use HP's X.400 products, with proven interconnection capability, ensuring reliable message exchange.

Both MCI and Hewlett-Packard intend to participate in joint marketing activities for their products. These activities will involve X.400 product and service offerings from both companies and will assist customers with X.400 implementation plans within their organizations.

Contact MCI International, Two International Dr., Rye Brook, NY 10573; (914) 934-6480.

Circle 400 on reader card

HP, Hughes Aircraft Form Developing And Manufacturing Alliance

Objectives Include Sale Of HP Workstations Into Military Market

HP and Hughes Aircraft have signed an agreement to develop and manufacture advanced workstations, PC, and other related equipment.

With estimated combined revenue of more than $200 million during the first three years of the agreement, the multiyear alliance identifies three main objectives: to transfer HP's Tempest operations and technology to Hughes; to jointly develop a high-resolution tactical display workstation; and to ruggedize HP commercial workstations for sale into the military market.

The alliance is designed to increase HP's presence in the military-computer market and to help Hughes extend its military-workstation offerings into commercial environments.

The first action calls for Hughes to modify a wide range of HP standard commercial products for the Tempest market. Tempest modification prevents unauthorized personnel from tapping into computer equipment through the use of electronic-eavesdropping devices.

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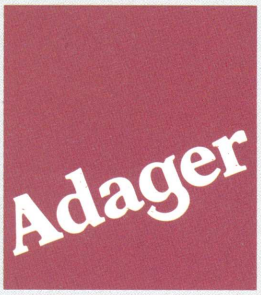
The same Adager software applies in all cases (with appropriate native-mode procedures for XL systems).

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This is Adager's policy on XL, in effect since 1987:

a) If you have an Adager license on a Classic machine and you simply get an **XL machine as an exchange,** there is no Adager upgrade fee at all.

b) If you have an Adager license on a Classic machine and you get an **additional computer that happens to be an XL machine,** you simply pay the Adager fee for the additional machine.



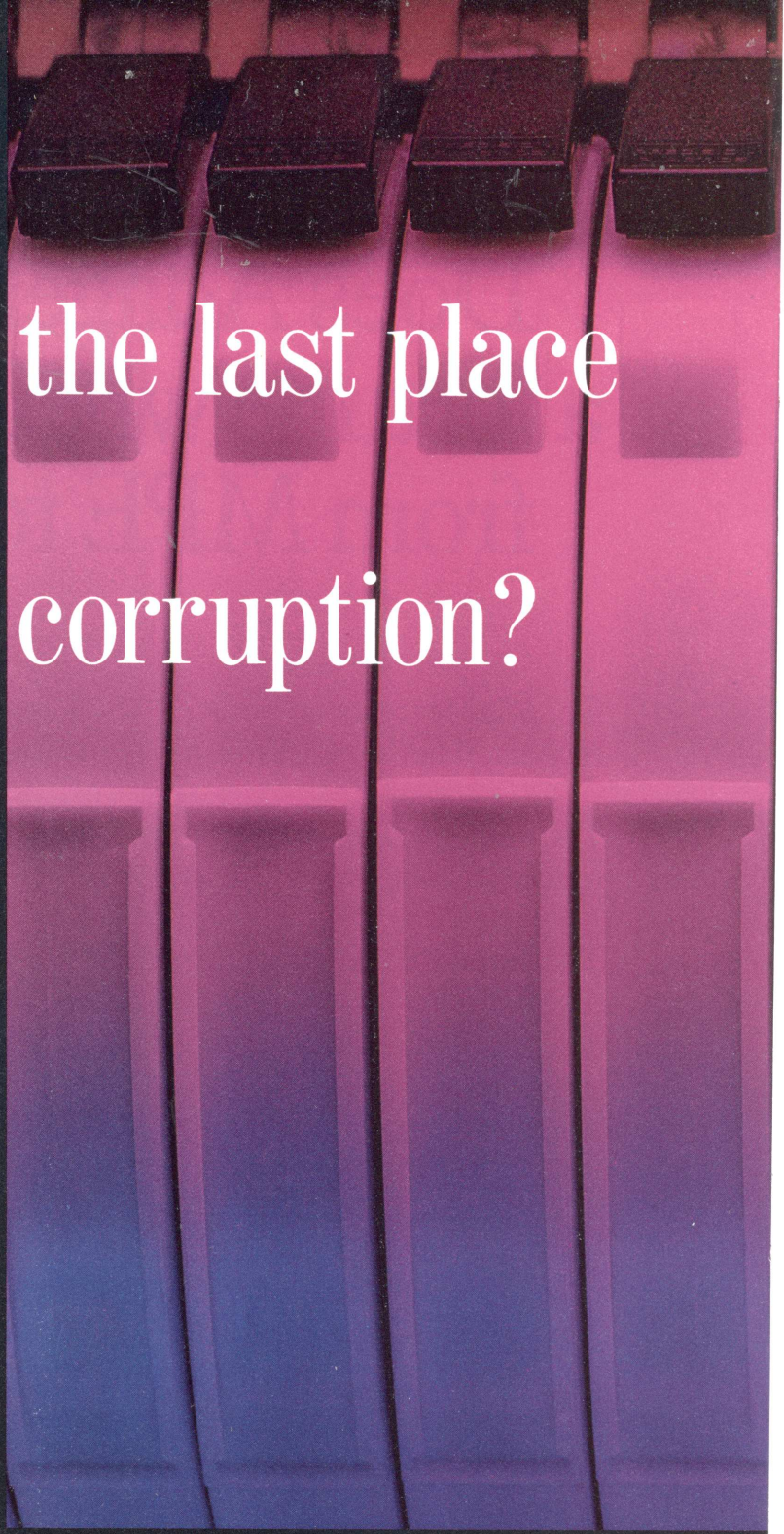
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CIRCLE 104 ON READER CARD

Where's the last place you'd look for database corruption?



Your backups? And you thought that was the safest place to keep your data.

Night after night operators back up months of new orders and thousands of customers, totally unaware that the data they're backing up may be corrupted. And don't be surprised, it happens to all of us — we first detect database corruption, and what do we do? We reach for our backups. In some cases your backup may be fine, in others, you may find it to be corrupted. If master and detail set linkages are not exercised frequently and corruption exists, chances are that you don't know about the data corruption, and in turn, it gets transferred to your backup.

There's one way to alleviate that problem — get DBGENERAL's Global Diagnostics and Corruption Repair facility.

It examines master and detail set linkages, bit maps, synonym chains, user labels, and a host of other potential corruption problems. It then gives you the ability to correct those problems quickly and easily, ensuring that it's save to backup your data.

By running the Global Diagnostics and Corruption Repair facility routinely, you have a better chance of detecting database corruption and a better chance of keeping it out of your backups.

So don't take chances with your valuable data. Make sure it's safe with DBGENERAL'S Global Diagnostics and Corruption Repair facility.

We've also made our Global Diagnostics and Corruption Repair feature a stand-alone option for those HP 3000 environments that already have a database utility, but lack the features to adequately diagnose and correct corruption and performance problems.

If you're concerned about your backups and would like to find out more about this great product, and how it can keep corruption from getting into your backups, call a Bradmark representative today.



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	14-737-5555	France	1-6928.2273	Israel	3-348.938	Scandinavia	9-103-6480		

CIRCLE 109 ON READER CARD

DISC's OMNIQUIZ And Tymlab's PDQ Now Compatible

Available Free To Current Customers

Dynamic Information Systems Corp. (Denver, CO) and Tymlabs Corp. (Austin, TX) have announced the availability of compatible versions of DISC's OMNIQUIZ and Tymlab's PDQ For QUIZ products. Previously, these two products could not be used together in a single QUIZ report. The new versions are available from the respective companies at no additional charge to customers with valid support agreements.

PDQ For QUIZ, designed by Tymlabs, compiles the source code for Cognos QUIZ Reports. OMNIQUIZ is based on DISC's OMNIDEX product and delivers high-speed relational access to Image databases from QUIZ.

A version of OMNIQUIZ that's compatible with PDQ's database access engine may be obtained.

Contact Dynamic Information Systems Corp., 652 Bair Island Rd., Ste. 101, Redwood City, CA 94063; (415) 367-9696.

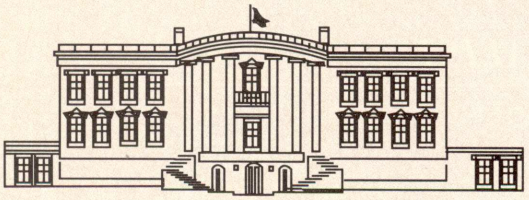
Circle 399 on reader card

Performance Technologies, OCSC Sign Distribution Agreement

Forms Accelerator Available To Private And Governmental Agencies

Performance Technologies has added Oracle Complex Systems Corp. (OCSC), a subsidiary of Oracle Corp., to its list of multinational distributors. Performance Technologies also has announced that OCSC has placed the Forms Accelerator on its 1990 GSA schedule, making it available for private and governmental agencies.

The Forms Accelerator is an add-on application that runs transparently with Oracle's SQL*Forms and performs two necessary functions. First, the Forms Accelerator enhances the performance of SQL*Forms by reducing the amount of CPU required to run SQL*Forms. Second, the Forms Accelerator provides detailed statistical reports that allow programmers and developers to monitor the actual performance of each SQL statement within the entire application. Both features lead to improvements in system efficiency and staff productivity.



QMS, Interleaf Announce Marketing Alliance

Includes Monochrome, Color Electronic Publishing Print Solutions

QMS Inc. and Interleaf Inc. (Cambridge, MA) have announced a marketing alliance covering the sale of QMS printers, including color and high-speed monochrome models, to Interleaf's user base in North America and Europe. QMS or its authorized representatives in Europe, with the direct assistance of Interleaf, will sell, install and service the printers.

Interleaf will support imPRESS and the Adobe PostScript page description languages to drive the printers.

Pilot EIS Runs Under UNIX

Pilot Joins HP VAB Program

Pilot Executive Software has introduced an Executive Information System (EIS) to run under UNIX. Pilot's EIS development environment and its suite of EIS templates, including its EIS/G series of code-generating applications, now run on HP 9000 Series 800 computers in the HP/UX environment. Pilot has joined HP's value-added business program.

Pilot can be used in four different host environments: HP/UX, VMS, VM/CMS and MVS.

Contact Pilot Executive Software, 40 Broad St., Boston, MA 02109: (617) 350-7035.

Circle 366 on reader card

Data Logic, HP To Port OpenMail Onto AIX On PS/2 Workstations

E-Mail System Portable To UNIX System Environments

HP has signed an agreement with Data Logic (United Kingdom) to port HP OpenMail onto IBM's AIX operating system on the PS/2 line of workstations.

HP OpenMail, which was introduced in August 1989, is an industry-standard electronic-mail system for UNIX system environments. Developed using X/Open standards, HP OpenMail is easily portable to another vendor's version of a UNIX system.

This port of HP OpenMail allows users of AIX-based PS/2 workstations to communicate externally using industry-standard protocols such as X.400.

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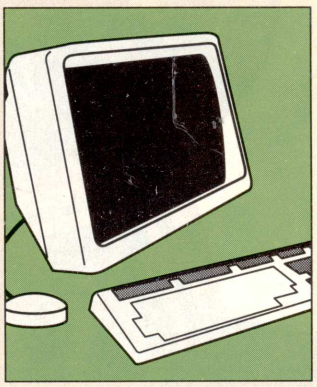
CIRCLE 111 ON READER CARD

Additional Sequoia Systems Ordered By HP

HP To Purchase Fault-Tolerant Computers

Sequoia Systems Inc. has announced that HP will increase the number of fault-tolerant computer systems it will purchase from Sequoia Systems Inc. this calendar year. The announcement comes only two months after HP introduced the HP 9000, Model 1240, its OEM version of the Sequoia system.

Under the OEM portion of the strategic alliance between the two companies, HP agreed to market the Sequoia Series 300 as the Model 1240, with primary emphasis in the telecommunications marketplace. As part of this agreement, HP will purchase a minimum number of Sequoia systems by March 31, 1991. Sequoia has granted HP exclusive rights to market its



product in the telecommunications marketplace, and non-exclusive rights worldwide.

Under the technology exchange section of the agreement, HP may incorporate much of Sequoia's technology into future HP products, while Sequoia will be able to incorporate HP's PA-RISC technology in future versions of its system.

Hitachi Ltd. To Design, Manufacture, Sell PA-RISC-Based Chips

Emphasis To Make PA-RISC Commercially Available

Hitachi Ltd. has announced that it will develop, manufacture and market RISC microprocessor chips based on HP's Precision Architecture technology.

Hitachi and HP also will jointly introduce development tools for the chip marketplace and will share PA-RISC design information.

This follows a separate agreement in July 1989 in which Hitachi and HP arranged to develop jointly a new higher speed RISC chip set to be used in computer systems produced by both companies.

Hitachi's objective is to make PA-RISC commercially available. The company expects to enter the marketplace in the spring of 1991 and eventually build a product line ranging from several mips to 100 or more mips.

For Your Information

- Infocentre Corp. recently moved its Dallas headquarters to offices at 600 E. Las Colinas Blvd., Ste. 1920, Irving, TX 75039.
- Verity Inc. (Mountain View, CA) and Frame Technology Corp. (San Jose, CA) have announced a joint marketing and development agreement that enables customers to retrieve and view documents generated by and stored in Frame's FrameMaker publishing software format with the TOPIC document retrieval system.
- HP customers can obtain online database support through a local phone call over Compuserve Inc.'s network. This service is called HP SupportLine and is included free in all HP software-support contracts.
- HP has announced an original-equipment manufacturer (OEM) agreement with Epoch Systems Inc. Epoch will purchase HP C1710A optical disc library systems.
- The Laser Printer Accessories Corp., subsidiary of Personal Computer Products Inc., has announced a $100 price reduction of ImageScript, a plug-in cartridge that converts the LaserJet II, IID, IIP and new LaserJet III into PostScript printers.
- Graphicus Inc. has been recognized as a Hewlett-Packard Premier Solution Provider. The Premier Solution Provider designation is "awarded to those companies that are aligned with HP's target markets and have met HP's requirements for excellence in company, product and customer support. These companies are in the top tier of the HP Value-Added Business Program."
- SAS Institute has opened subsidiary offices in Madrid, Spain and Geneva Switzerland.
- EXABYTE Corp. has opened a European sales and technical support office in Houten, The Netherlands and a service/repair depot in Cumbernauld, Scotland.

EDI Solutions, AT&T Sign Co-Marketing Agreement

Pact Provides Single-Source EDI For Mainframe, Mini Platforms

EDI Solutions Inc. has announced an agreement with AT&T that calls for the two firms to co-market EDI Solutions' EDItran software to provide coordinated solutions in electronic data interchange (EDI) for mutual customers.

EDItran translation and management software converts data formats used by application programs running on a company's internal computer system into industry-standard formats that can be readily transmitted to EDI trading partners.

EDItran software is priced from $12,000 to $27,000, depending on the computer model.



Find the time to see September 28th how fast PDQ® can run your QUIZ® reports. Order a 30-day demo of PDQ by ~~August 17th~~, buy PDQ within 10 days after the demo period, and we'll take 15% off the license price for your CPU, 20% off if you buy your first year of support at the same time. Now speeding up your QUIZ reports is easy and inexpensive. Let us prove it. Call today for your free demo.

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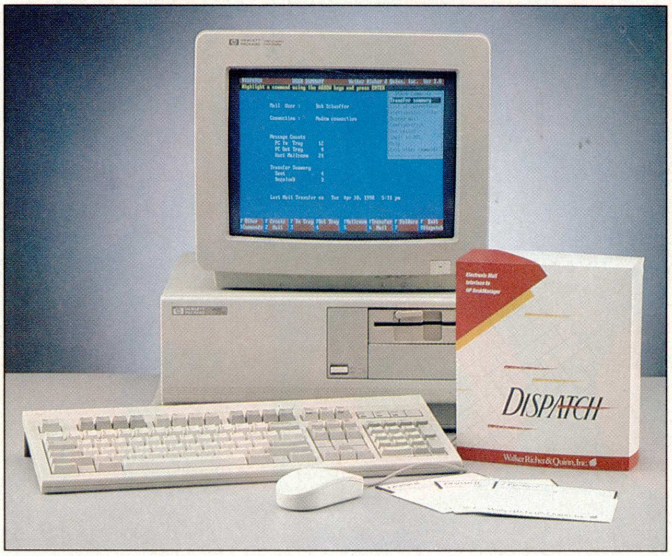
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CIRCLE 243 ON READER CARD

Keep In Touch



Dispatch Keeps You Informed When Using HP DeskManager

Every year, hundreds of thousands of dollars are spent by large companies so their employees can dial-in and read their mail messages. If your company is a heavy user of HP DeskManager, Dispatch could be one way of reducing the size of your phone bill.

Dispatch, from Walker Richer & Quinn (WRQ), is a PC-based electronic mail management system for HP DeskManager. Dispatch allows your PC to handle message management and presentation functions while using HP DeskManager as a mail server and distribution system.

Dispatch replaces the command driver interface of HP DeskManager with an intuitive PC interface. All functions in Dispatch are displayed via a combination of function key labels and pop-up menus. All commands available appear right on the screen and mouse support is fully employed providing a fast way to perform tasks.

Dispatch consists of modules that can be run as stand-alone programs to save time or conserve PC memory. The module that performs mail transfers is automatically unloaded from the PC's memory as soon as the task is complete.

"Employing Dispatch in an HP DeskManager network and processing electronic mail 'off line' will result in reduced communications costs and reduced network overhead for the customer," says John Vanderwall, market development manager for WRQ's electronic mail products.

Using Dispatch, HP DeskManager messages are downloaded and processed on the PC. Reading, creating and replying to messages is performed at the PC level independent of your HP 3000. The host connection is automatically established during the transfer of messages to and from HP DeskManager.

Connect time is minimized to the length of the transfer time. In addition, the exchange of messages between Dispatch and HP DeskManager can be scheduled to occur at off-peak hours when line rates and host demand are lower.

Downloaded messages can be stored and handled on the PC, reducing the amount of host disc space required for each user's mailbox and messages. Users are only connected to the host for short periods of time to transfer mail. Thus, host ports are freed and host resource consumption is reduced.

The mail transfer component of Dispatch may be independently loaded and executed and is capable of background multitasking. This allows you to operate other programs on the PC while mail transfer occurs in the background.

Dispatch also can automatically screen your mail, and it allows you to build sets of criteria that it uses for selecting mail. For example, you could tell Dispatch to receive only those messages from your manager or those marked "Urgent."

Dispatch also features offline mail preparation and review, folders, the ability to shell to DOS, copy message parts to DOS files, and mail transfer to host via direct connect, modem, X.25, or LAN connection.

"Dispatch has productivity implications for an estimated one million HP DeskManager users who are looking for the convenience of a streamlined PC interface to host-based software," says Vanderwall. "The result will be enhanced organization-wide communications."

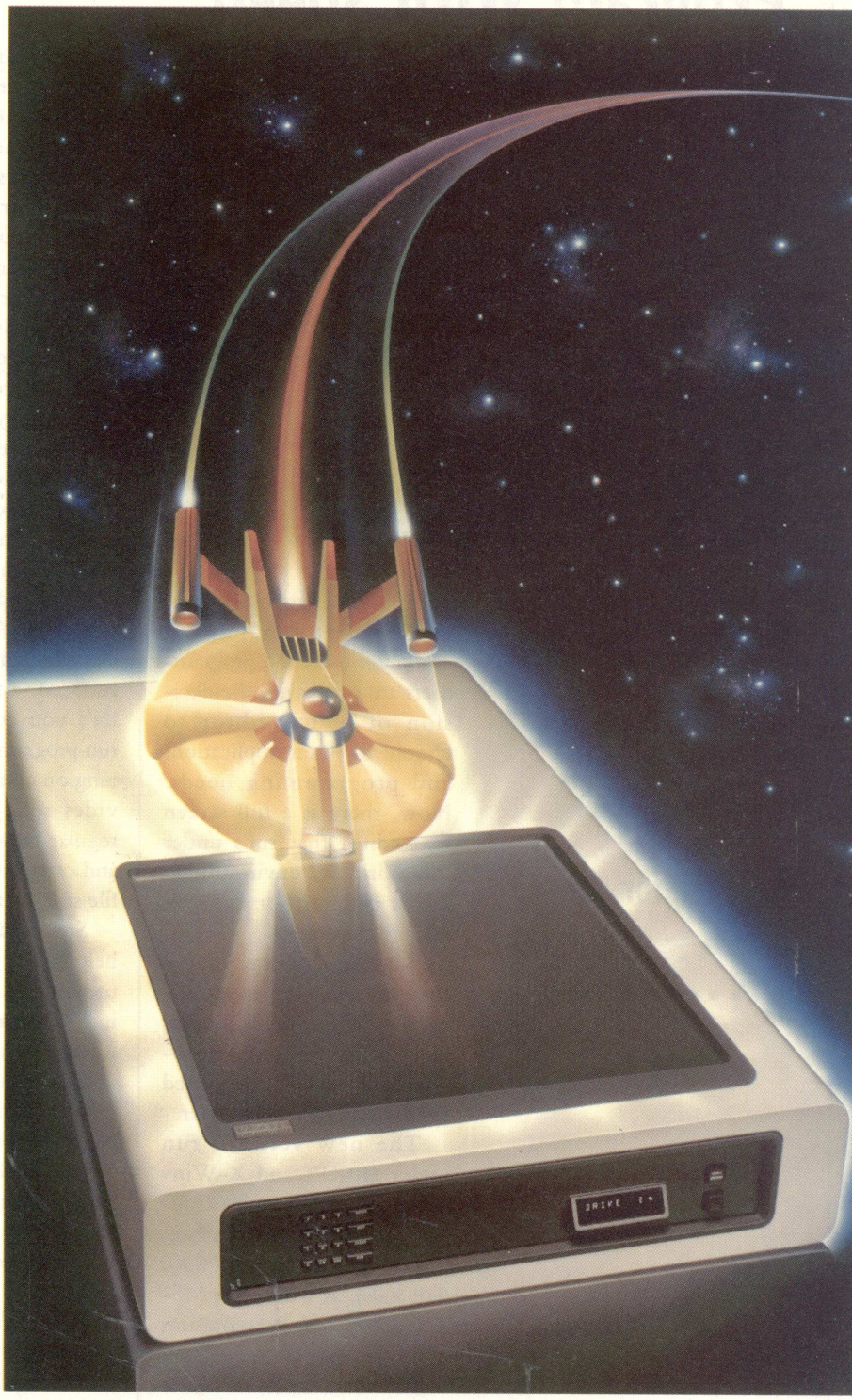
Dispatch requires an HP 3000 running MPE version V or later, or MPE XL version 1.0 or later, and HP DeskManager version B.00.00 or later. Price is $399.—*George Frueh, Technical Editor.*

Walker Richer & Quinn Inc.
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(206) 324-0350

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Space — It's not endless when it involves your disk resources!

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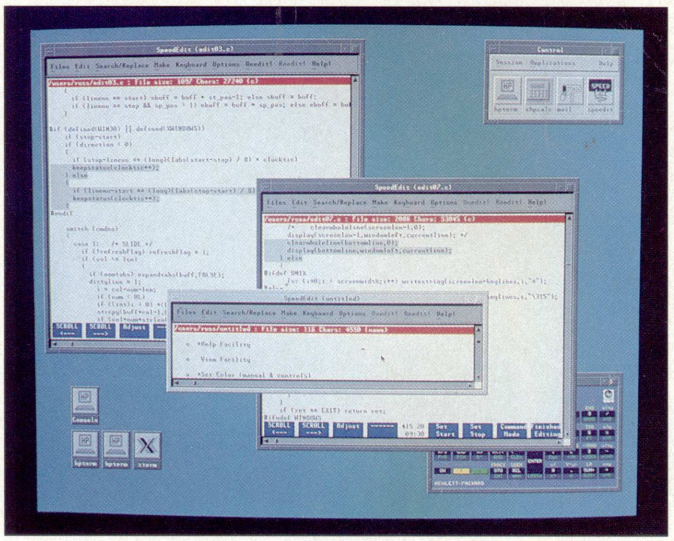
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Program With Speed



Bradford Enhances Its Full Screen Text Editor

With increasing numbers of text editors popping up, computer users and programmers are faced with the decision of which editor to choose for their applications and programming needs. Now, there is a full screen text editor that runs under the Windows environment, and is designed for the serious programmer.

Bradford Business Systems Inc. has released two new versions of SpeedEdit, its easy-to-use full-screen program and text editor designed for the serious programmer.

The new versions run under HP-UX and X-Windows. SpeedEdit is also available for other UNIX systems, DOS, OS/2 and MPE/MPE XL (HP 3000), as well as for MS-Windows and Presentation Manager.

Because SpeedEdit is available for all standard operating platforms, programmers should find greater productivity as they move between dissimilar environments.

The SpeedEdit system supports the features native to Windows applications, including scroll bars, mouse support, pull-down menus, list boxes and multiple windows. There are more than 150 built-in editing functions in SpeedEdit that perform the ordinary operations such as copying, moving and deleting lines.

Also included are the more advanced features of recording and playing back macros, scanning groups of files, swapping columns of text or numbers, and aligning keywords in COBOL, SPL, PASCAL and C. SpeedEdit let's you compile, link and run programs with error-trapping on compiles. It also provides split-screen editing, regular expressions, selective and complete undo, multiple file search and modifications.

SpeedEdit has a built-in help facility that can be augmented and reworded allowing you to add "convenience items" at any time.

You can create keyboard macros with SpeedEdit and play them back when needed. Special logic in SpeedEdit allows a macro to terminate its loop when the end of a file is encountered or an error is detected.

Russ Bradford, president of Bradford Business Systems Inc. recognizes that, "One of the most common questions concerning any program regards ease of use." "SpeedEdit," he says, "was designed with this question in mind, as we were not willing to make the age old tradeoff of capability for ease of use."

One of SpeedEdit's more impressive features is the ability to handle groups of files as one. Two functions, SCAN and GEDIT, allow you to perform virtually any SpeedEdit operation on sets of files rather than just one text file.

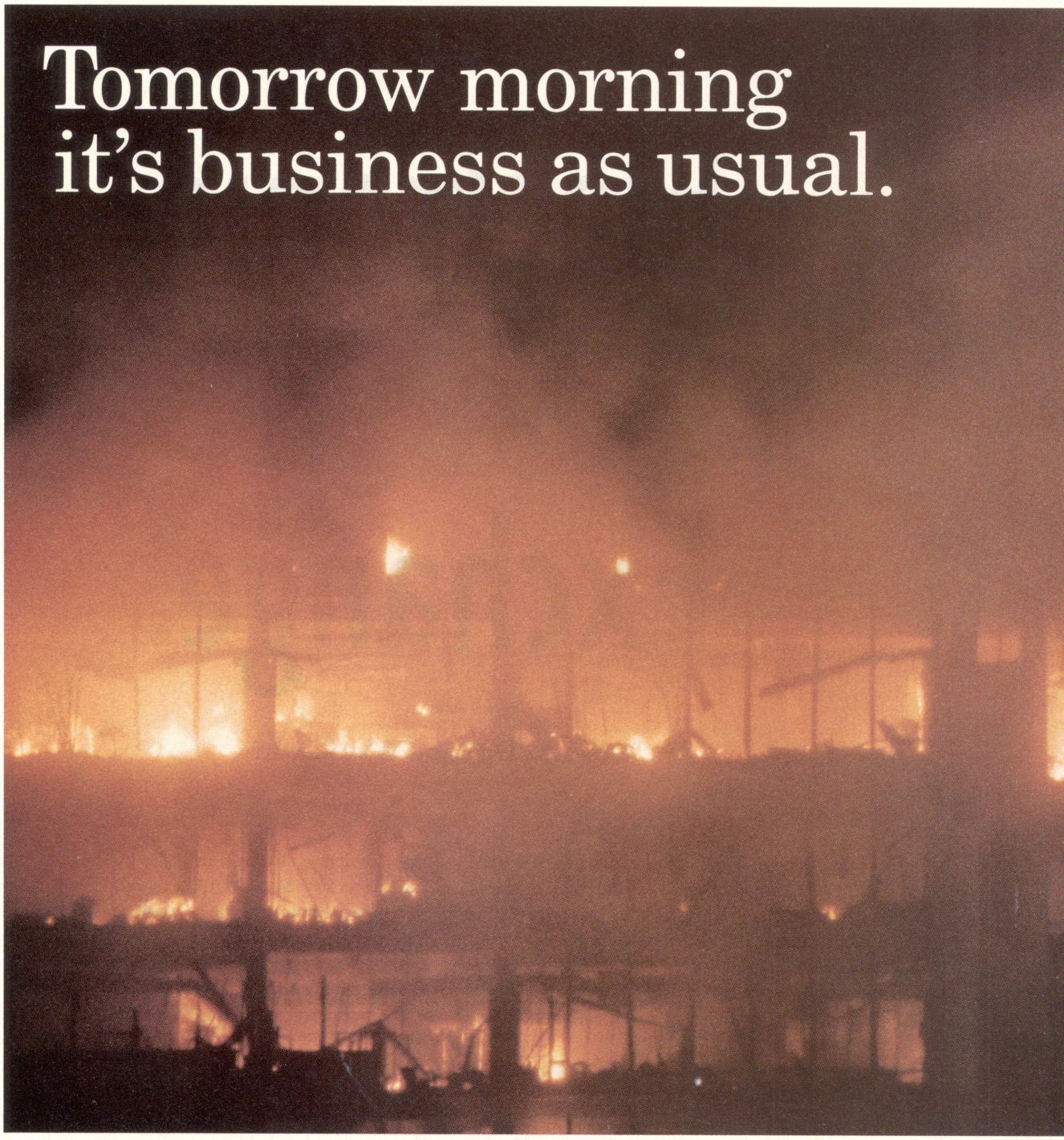
SCAN lets you rapidly locate a given string of characters in a file set. Once the character string is located, the file is immediately available for editing. The GEDIT command is similar, but rather than scanning for a string, it performs one or more commands on each file in the set.

SpeedEdit also makes excellent use of color, allowing you to see the range of lines selected for block and range operations. SpeedEdit also differentiates lines that have been modified as opposed to those that have not been altered since editing began.

SpeedEdit sells for $295 on all IBM-PC based platforms and $395 on single user UNIX workstations. SpeedEdit for multiuser UNIX systems is priced according to the system.

Bradford Business Systems Inc.
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Electronic Design Exchange

What Is EDIF And Why Use It?

[BY MARTY PONIATOWSKI]

The Electronic Design Interchange Format (EDIF) grew out of a need to supply design information to silicon foundries and exchange design data among different CAE/CAD systems. Information has long been supplied to silicon foundries using EDIF, and we now have reached a point where design information can be exchanged among CAE/CAD systems of different manufacturers if those manufacturers support EDIF.

EDIF is truly an evolving standard. The EDIF specification began taking shape in 1983 and now has reached a point where the specification is detailed enough to allow many CAE/CAD manufacturers to perform design exchanges. EDIF 2 0 0 Version 0 is the current revision of EDIF, which defines the items that may be transferred. Future versions of EDIF will provide for the transfer of even more data making the EDIF links provided by CAE/CAD manufacturers more functional. *Figure 1* shows how EDIF would be used to exchange information between two different CAE/CAD systems.

An EDIF description is hierarchical, becoming more detailed as you work your way down the hierarchy. It is entirely neutral in the sense that the description, which is in the form of a database, is intended to be read or written by an EDIF translator. There are no executable statements or programming concepts implemented in EDIF. The description does however use many concepts related to CAE/CAD, which allows designs to be transferred while maintaining the relationships of elements in the design.

As with most CAE/CAD applications, the way libraries are used in EDIF is important. A hierarchical EDIF description may include a detailed description of each element in the design, or it may reference external libraries. If several EDIF transfers are required, then it's helpful to set-up library relationships rather than transfer detailed library information each time a transfer is to take place.

In addition to library information, an EDIF description can contain cells and views. A cell is a high-level item described in terms of views or in terms of other cells. For instance, a cell might be a design that consists of a *schematic* and *symbolic* view. An alternate way to describe the same cell is to define it in terms of other cells. Although the hierarchy used by EDIF permits a great deal of flexibility, EDIF requires that cells be defined before they are used within other

cells. The hierarchy employed by EDIF, combined with the definition of cells before they are used within other cells, results in EDIF descriptions that can be read by simple and efficient single-pass readers.

What Kind Of Information Can Be Exchanged?

THE VIEWS WITHIN A CELL description contain the information typically associated with electrical designs. *Figure 2* shows the views that EDIF supports. Some are well defined in the EDIF specification, others are not. Here's a brief description of each view.

NETLIST — Contains connectivity information (an example is shown later in the article). This is a widely-used, well-defined part of EDIF used for reading and writing design files.

SCHEMATIC — Associated with connectivity and drawing information. Full support of this view by CAE/CAD manufacturers would permit exchange of schematics from the CAE/CAD system of one manufacturer to that of another. This aspect of EDIF has drawn a great deal of attention and has been successfully demonstrated by some CAE/CAD manufacturers.

A schematic contains symbols, wires, connecting symbols and associated text. A schematic may be a cell comprised of symbols that are themselves cells—an example of the way cell hierarchy is employed in EDIF.

SYMBOLIC — High level topological view of a cell.

MASKLAYOUT — Physical description of a design used by semiconductor foundries.

PCBLAYOUT — Physical description of a printed circuit board. Similar to MASKLAYOUT except information related to board layout rather than chip layout is used.

BEHAVIOR — Under development.

LOGICALMODEL — Describes the simulation model of a cell.

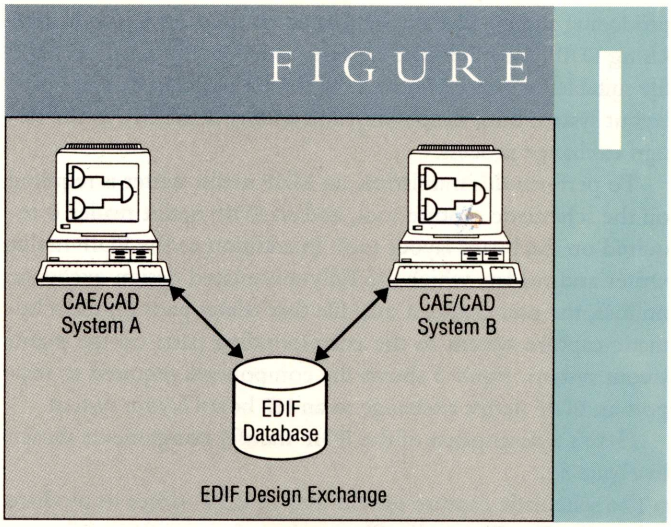
DOCUMENT — Description of a cell in document form that may include sections, diagrams, symbols, etc.

GRAPHIC — Graphical information such as symbols used by many cells may be defined.

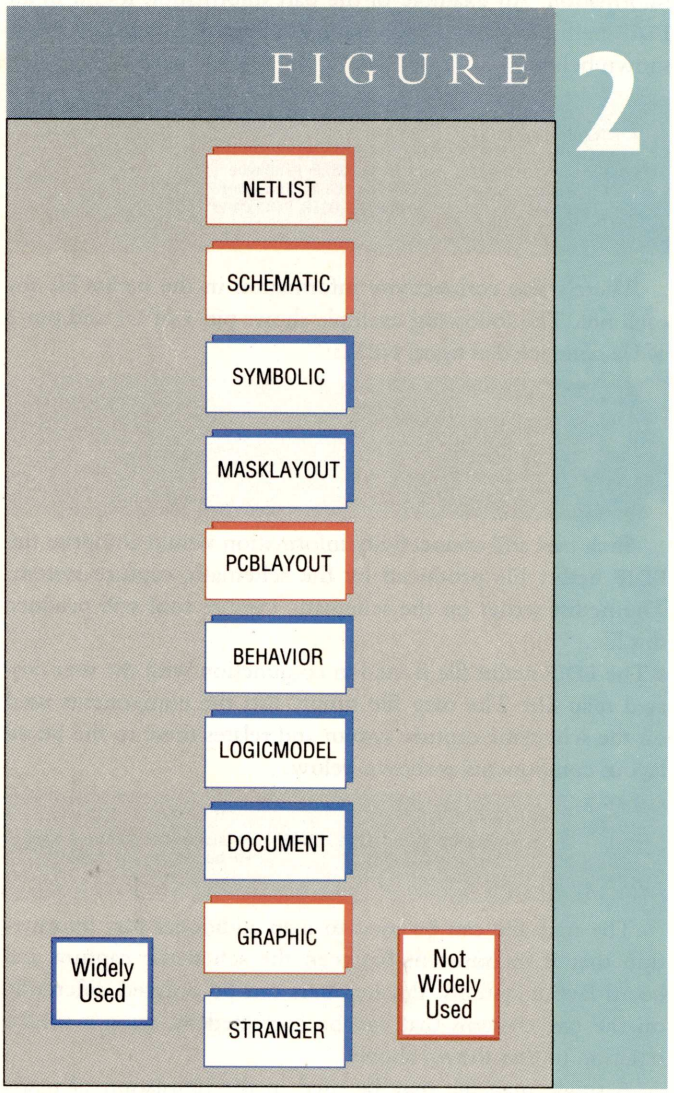
STRANGER — Used to define information not covered by other views.

Some aspects of the EDIF 2 0 0 Version 0 specification are more detailed than others. The four views shown in red are more widely used than the other views partly because the specifications for these views are better defined and also because there's an immediate need for an industry standard to support exchanges of such data.

The simplest example of the usefulness of EDIF is netlist exchange. A designer using any schematic capture tool should be able to transfer his design to any board layout tool using an EDIF netlist description. Using EDIF as a neutral format, this type of design exchange is simplified. The designer isn't burdened with



Information Exchange Using EDIF.



EDIF View Types.

producing design files in the format of the board layout tool. Using EDIF, the schematic capture system can produce an EDIF file suitable for translation into the format required by any board layout system both simplifying and adding flexibility to the design exchange process.

To perform this translation, an EDIF netlist writer is required on the schematic capture tool, and an EDIF netlist reader is required on the board layout tool. In addition to the EDIF netlist writer and reader, which are fully-automated design exchange utilities, the user creates a map file that relates parts on the schematic capture system to the corresponding parts on the board layout system. *Figure 3* shows the components required to support an EDIF netlist exchange to an HP board layout system.

Here's a description of the EDIF transfer components shown in *Figure 3*.

■ The schematic capture system uses an EDIF writer to produce the netlist file. The netlist file consists of part and connectivity information. An example of the part information found in an EDIF netlist file for a 7408 with a reference designator U1 is shown below:

```
(instance X_101 root_NET  U1
 (property USER PartType "7408")
PortInstance Input_A (property USER PinNumber "1")
PortInstance Input_B (property USER PinNumber "2")
PortInstance Output_C (property USER PinNumber "3")
```

There's also connectivity information in the netlist file for each net. The following example shows pin 1 of U1 and pin 2 of U2 connected as signal NET1:

```
(define local signal NET1)
(joined NET1
 (qualify U1 Input_A)
 (qualify U2 Input_B)
```

Such part and connectivity information would comprise the EDIF netlist file produced by the schematic capture system. The netlist writer on the schematic capture tool will produce this file.

■ The EDIF netlist file is used in conjunction with the user created map file. The map file simply lists the components used on the schematic capture system and relates these to the board layout components as shown below:

```
(cell CHIP (property USER PartType "7408") -> schematic capture name
    = ".PACK."(PART "HP7408"))              -> board layout name
```

The map file can be used to map additional part information that is inconsistent between the schematic capture and board layout systems. Pin numbers can be ordered differently on the two systems that can be corrected by using a similar notation to that shown above.

A single map file may be used in the translation of many different EDIF netlists. Parts not used in a design will be ignored by the translation program. A map can contain information about parts used in the design and many parts not used design. There may, therefore, be one map file used for all EDIF netlist transfers.

> Using EDIF, the schematic capture system can produce a file suitable for translation into the format required by any board layout system.

■ The HP PCEDIFin program then takes these two files and produces two outputs, the board layout design file and a report file.

■ The board layout design file is in the format required by the HP Printed Circuit Design System (PCDS). PCEDIFin is a sophisticated program that allows the user to read any EDIF netlist file and convert this into a PCDS design file.

■ The report file contains useful information related to the translation of an EDIF netlist file to a PCDS design file. A complete history of the translation is included in the report file including errors and warning information the user may want to check.

After the PCDS design file is produced, the board layout process begins. Except for the manual effort required to produce the map file, this process is fully automated.

Schematic Transfer

THE EDIF NETLIST PROCESS just described is useful and easy. Producing a schematic reader and writer is more difficult than producing the netlist reader and writer. The following is a partial list of the functionality EDIF schematic readers and writers should possess.

EDIF Writer:

■ Transfer symbol libraries to other schematic capture systems.

■ Transfer schematics to other schematic capture systems.

■ Transfer user-defined information contained on schematics.

EDIF Reader:

■ Accept symbol libraries from other schematic capture systems.



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(703) 359-1500

July 30, 1990

George W. Forsythe
Vice President, Unified Software Systems
6551 Loisdale Court, Suite 400
Springfield, Virginia 22150

George,

I am writing this letter to voice my appreciation for the support you have given Long and Foster's Data Processing department, and to let you know how your product line "Security Plus" has enhanced the use and operation of our Hewlett Packard computers.

I am a Programming Manager for a shop with a Hewlett Packard 3000 series 950, and a Hewlett Packard 3000 series 70 system with roughly 150 interactive users supporting a $6.4 Billion real estate business (total sales volume 1989).

When I first received a demo of your Security software, I was using the centralized menu files to be created and maintained on the MPE user level. package which was cumbersome to use and required non-Because of the hassle involved in setting up security, and because applications within the company grew so rapidly, system security seemed to always be a back burner concern until we were "weekend hacked" (probably by an ex-employee of the company). This incident left us with a system that couldn't be used because of altered files and account structures. While we were recovering our system, I gave you a call to tell you of our dilemma. Within the hour you, and some of the Unified staff were on site assisting to make our system "secured".

Since that first association in April 1988, you and your technical staff, especially Edward Finch and lately Thomas Kirby have proven time and again that there aren't many situations that you can't come up with a solution to handle. Many of the suggestions I have made have been incorporated into future releases of PMS3000. This flexibility of user support is virtually unheard of in the canned software market. Even when we needed an interface with our Cognos POWERHOUSE applications, you were able to show us how to do what was needed. Your security package PMS3000 is an easy to use, screen driven, application manager which narrows the use of applications to an individual user (MPE Session name), as well as logging what user does what, when, and for how long. Your password program CHNGPASS makes sure that our users don't get sloppy with old passwords, and the available reports keep us current on users, and access.

All eight groups in your Security Plus line have utilities that make a difficult job easier, and make your company a sort of "one stop shop" for application support software. I recommend your package to any shop in need of a versatile and reliable security system, and I thank you for your continued support and flexibility in a changing market.

Richard P. Stevens

Richard P. Stevens
Programming Manager
(703) 359-1657 voice (703) 385-7357 fax

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486 processor combines the capabilities of an enhanced 386, fast 387 math coprocessor, an advanced cache controller and 8K of supporting static cache memory. Result? Incredible processing speed!

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- Accept schematics from other schematic capture systems.
- Accept user-defined information contained on schematics.

With the capability to freely exchange schematics from one CAE system to another, users are in a position to share design information as never before. Schematic exchange has been demonstrated by a number of CAE manufacturers and promises to offer CAE system freedom that could greatly improve design productivity.

Where Does HP Stand?

HP HAS DEVELOPED SEVERAL EDIF links. The HP Design Capture System (DCS) used for design creation and verification has an EDIF option that both reads and writes EDIF files. With the DCS EDIF option, you can read symbol libraries for ICs, ASICs, standard parts and schematics. HP's EDIF writer produces symbol libraries for ICs, ASICs, and standard parts, as well as schematics produced in DCS. DCS also produces EDIF netlist output.

The PCEDIFin product described in the earlier example is used to read EDIF netlist information from any schematic capture system in HP Printed Circuit Design System (PCDS) board layout format.

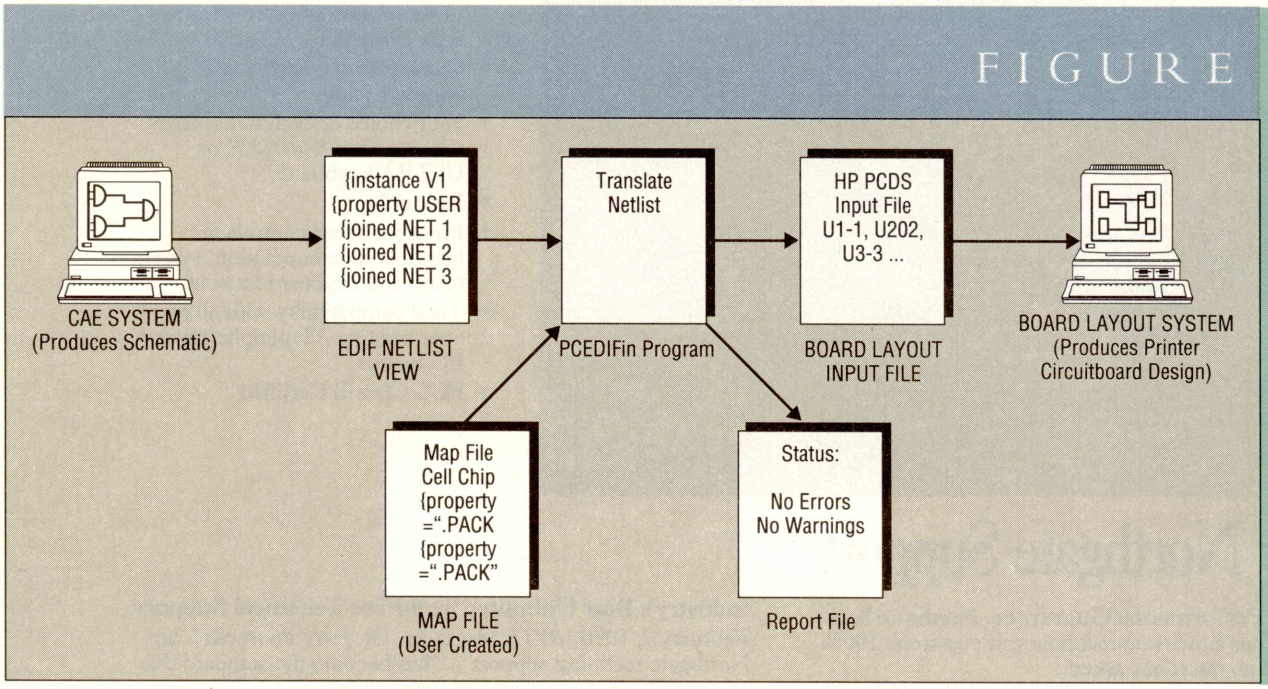
These EDIF products demonstrate HP's commitment to an open database architecture and its ability to exist in a multivendor CAE/CAD environment. HP has representatives on various EDIF subcommittees helping craft the EDIF specification and is a member of the EDIF steering committee. Ambiguities in the interpretation of the existing EDIF specification should be reduced in subsequent revisions, making exchanges of the type discussed in this article easier to perform, and more thorough. *—Marty Poniatowski is an application representative, computer-aided engineering for Hewlett-Packard, Glastonbury, CT.*

With the capability to freely exchange schematics from one CAE system to another, users are in a position to share design information as never before.

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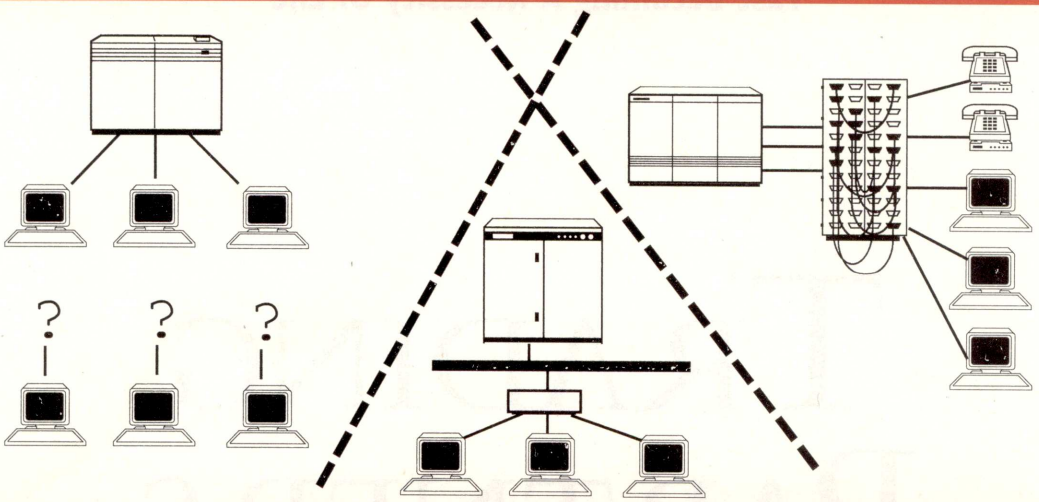
Resource: "Introduction to EDIF," Electronic Industries Association EDIF Steering Committee, Washington, D.C., 1988.

FIGURE 3

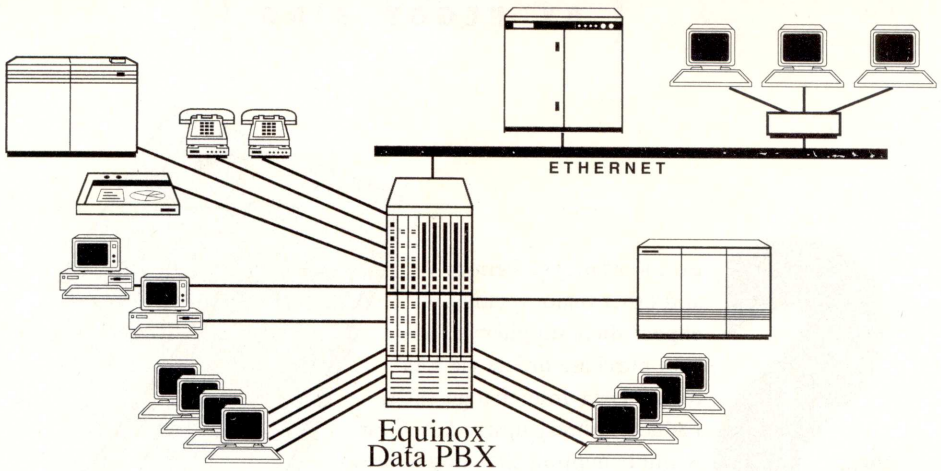


Overview of EDIF Netlist Exchange Process.

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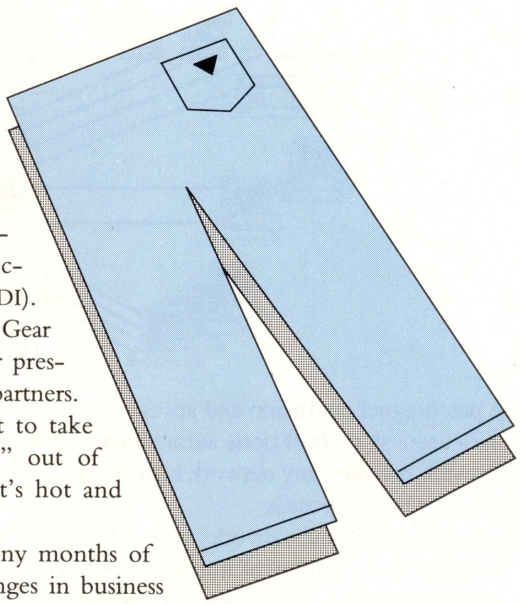
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For Merchandise Suppliers, EDI Is Fast Becoming A Necessity Of Life

TRADING PARTNERS

[BY PEGGY KING]



Sears, K-Mart, J.C. Penney's and other major retailers all expect their suppliers to accept purchase orders via Electronic Data Interchange (EDI). Fashion industry upstart L.A. Gear is implementing EDI under pressure from its larger trading partners. Guess Jeans, in an attempt to take some of the "guess-work" out of sales, relies on EDI to decide what's hot and what's not.

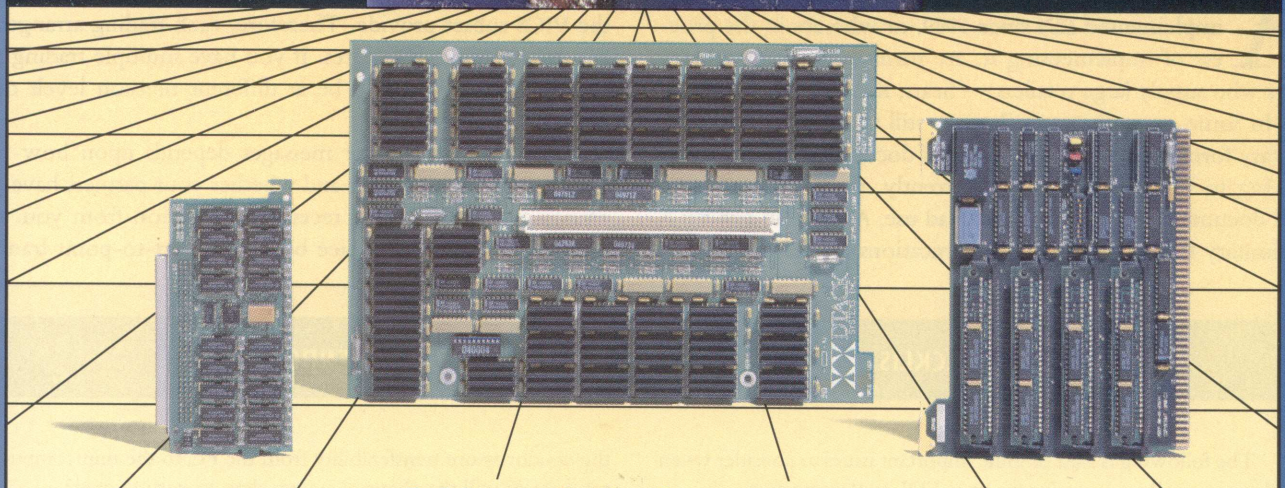
But implementing EDI takes many months of planning, involves substantial changes in business practices, and requires expensive employee training. Questions surrounding this computerized way of doing business include: What, if anything, will be the standard format for EDI transmissions? How can businesses contain EDI implementation costs? What do suppliers stand to gain from EDI? There is little question, however, that if you're a merchandise supplier planning to survive in today's market, EDI is fast becoming a necessity for you.

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EDI, simply put, is the direct computer-to-computer exchange of standard business documents between two companies. The term "trading partner" is used to refer to a business using EDI, regardless of whether it's on the customer or the supplier side of the transaction. In most cases, the customer-side business initiates the trading partner relationship by requesting (or *demanding*) that its suppliers accept purchase orders electronically. However, after they successfully handle their first set of transmissions, supplier businesses quickly progress to sending their invoices and shipping notices over the same communications lines.

The Components

A MAJORITY OF THE HP 3000 customers who have implemented EDI since 1989, or who are in the process of implementing it, are manufacturers or wholesalers who supply large retailers — Sears, K-Mart, J.C. Penney's, etc. In some cases, these retailers are still using their own proprietary formats for the interchange of documents, but most are moving to industry standards. Currently, there are two standard document formats in widespread use, ANSI X.12 and VICS (Voluntary Inter-Industry Communications Standards).

ANSI X.12 — The shipping, grocery and automotive industries began working together on the ANSI X.12 committee in 1978. Although the major retailers weren't among these early adapters of standards for EDI, most are now using standard transmission formats. The most current revision level of ANSI X.12 committee standards is 2003, but many trading partners still use the 2001 and 2002 interchanges.

VICS — VICS is a subset of ANSI X.12. It provides some industry-specific features for documents exchanged by retailers and their suppliers. VICS is especially useful to apparel vendors, whose product orders must specify size, color and style.

When you implement EDI at the request of your customers, you're expected to adapt to their purchase order format, whether it's completely standard ANSI X.12, a "dialect" of the VICS subset, or even a proprietary format. Most retailers want a degree of customization beyond what ANSI X.12 and the VICS subset provide. Therefore, each trading arrangement has its own unique features. If you have multiple trading partners, chances are they'll be at different revision levels of the ANSI X.12 standard.

The way you transfer messages depends upon how many trading partners you have and whether your partners have preferences about how they receive information from you. Currently, you have the choice between point-to-point transmis-

[Checklist — Choosing An EDI Software Vendor]

The following is a list of some important issues to consider when selecting a software vendor for your EDI implementation:

1. Support — How much assistance will be available during the initial installation? How accessible will the technical support staff be after the sale?

2. Documentation — Is it clearly written and easy for beginners to understand? Does it explain all of the software functions in adequate detail? Is there a reference manual?

3. Naming conventions — Are they logical and easy to remember?

4. User interface — Is the software menu-driven and suitable for use by your purchasing department or must it be operated by a programmer.

5. Translation — How much intermediate translation does the user need to do? Will you need to write additional code in order to complete your data translation? Or does the translation require the user to learn a new proprietary language?

6. Multiple versions — Can the software accommodate a variety of standards? How easy is it to adjust the software to switch between the different revision levels of ANSI X.12?

7. Speed — How quickly can the software transmit your messages? If you are currently using a PC package, can the vendor estimate how much your transmission time will decrease when you upgrade to an HP 3000 package?

8. Upgrade path — If you choose to start with a PC package, can the vendor assure transferability from the PC to the minicomputer software or will the change be equivalent to starting over?

If you are an HP 3000 user, here are your choices for EDI software or PC-based software with a growth path to the HP 3000:

Birmingham Computer Group began by offering EDI for the automotive industry and now offers DTS (Document Transmission System) for the HP 3000 and for personal computers.

EDI Solutions' translation software, EDItran, runs on the HP 3000, and its mapping package, EDImap, is a PC application. In December, 1989 HP signed a license agreement with EDI Solutions allowing HP to use EDItran at any of its worldwide locations.

Perwill Inc. offers EDI/3000 and the PC-based product ISM-EDI. Both products have four subsystems, including EDIPARSE, a translator, and EDIFORM, a mapping subsystem.

TSI's (formerly TransSettlements) translator, TransLate, was ported to the HP 3000 from IBM mainframes and works only in batch mode. TransSettlement was created for the shipping industry. To date, the HP version has four customers, and only one of them is a retailer.

If you have an HP 9000 and want to localize EDI processing from several machines, a new product, EDI-Server from American Business Computers, manages transmissions from multiple hosts on a network and includes a 4GL database. A pilot installation of the HP 9000 version of EDI-Server is being tested.

sion (sending electronic messages directly to your trading partner's computers) or using a third-party mailbox service known as a VAN (value added network).

Point-to-point — Point-to-point communication may be best for you if you have only one or two EDI trading partners and don't anticipate getting others. Beth Voorhees at Abu Garcia (Fairfield, NJ), a manufacturer of fishing equipment, uses point-to-point transmissions to trade with K-Mart and Wal-Mart. She prefers this method because there's "no network, no mailbox, no mapping, and you don't have to pay a VAN." For more than eight years, Abu Garcia has traded with K-Mart using its proprietary format. Now that K-Mart and other large retailers are migrating to standards, they're becoming less willing to maintain their point-to-point connections. "We may be forced to join a network," says Voorhees.

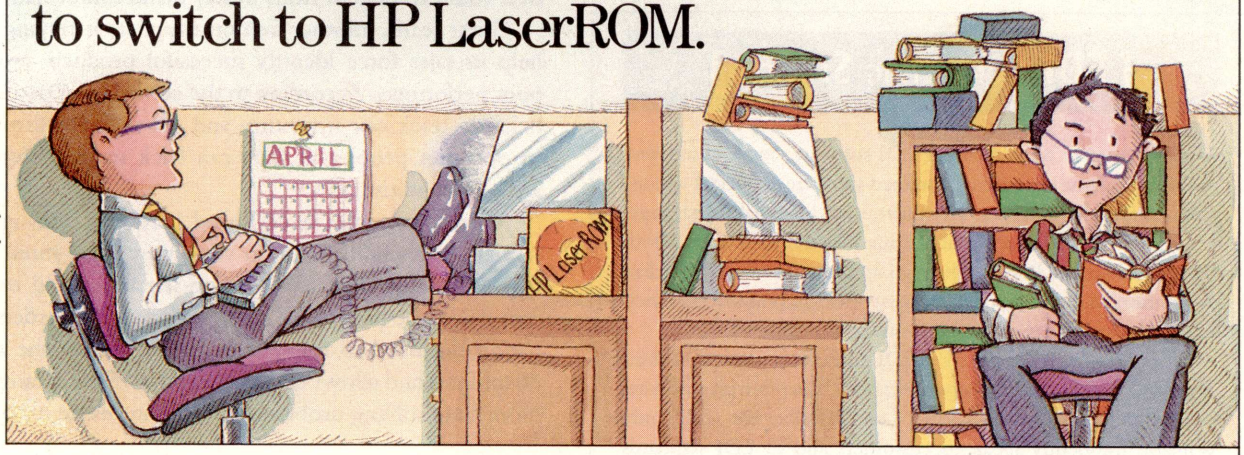
VANs — The VAN you choose may depend upon which one(s) your trading partners prefer. GEIS (General Electric Information Systems), OrderNet and IBM Information Services are some of the VANs most frequently used for retail EDI. Wal-Mart and Sears have started their own VANS. Wal-Mart gives its suppliers a break by charging them no fees to use its VAN. Customers trading with Wal-Mart incur no charge other than phone connection costs, but they still require other VAN services to accommodate their other trading partners. Sears' charges are comparable to those for other VANS, but suppliers can use the Sears VAN to communicate with other trading partners as well. Because HP customers are usually on the supplier side of EDI relationships, they frequently must choose more than one VAN.

Once you choose a VAN or VANs, you usually receive written instructions about how to establish communications, including information about modems compatible with your hardware. Most VANs offer the choice between synchronous and asynchronous communication.

Synchronous communication is accomplished via RJE (remote job entry based on IBM's 2780/3780 protocol), which recently became available on Precision Architecture systems. Doing RJE on any HP 3000 requires either an HP RJE device connected to an internal port or a Bisync Network Engine from Telemon (Oakland, CA), which costs much less than HP RJE and connects externally to a DTC on Precision Architecture machines or to the ADP or ADCC terminal port of any Classic 3000.

Asynchronous communication is slower than RJE and doesn't have its error detection capabilities, but it does offer advantages that make it a cost-effective choice. One is that you can use just about any type of modem to establish a connection with your VAN. By contrast, an RJE connection only works with

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certain types of modems and requires the same modem type on the sending and receiving end. Computer Management Solutions recently introduced VAN LINK, a software product that establishes an asynchronous connection to a VAN. VAN LINK on the HP 3000 eliminates the need for RJE hardware.

In the near future, companies will be able to use high-speed X.400 communication both for electronic mail within their companies and for EDI transmissions outside. X.400 is the international protocol for electronic mail exchange that allows communication between dissimilar message systems. MCI and AT&T already Support X.400 for DEC's EDI software, but HP's X.400 implementation for the HP 3000 is still in beta testing. According to Sandy Whitson, business manager for Hewlett-Packard's own implementation of EDI, HP won't implement X.400 internally until there are agreed-upon rather than de facto standards for this protocol. "We don't want to have a proprietary implementation," says Whitson.

What's Your Standard?

WHEN HP PROFESSIONAL talked to 12 HP 3000 customers doing EDI, the biggest complaint was that using standards (ANSI X.12 and the VICS subset) doesn't make EDI easier for suppliers than it had been with proprietary formats because every retailer insists on adding its own enhancements. Dave Ryan of Guess Jeans sums up the problem, "How can I stay standard with retailers when they all want something proprietary from me?"

[EDI Consulting Services]

As an alternative to purchasing EDI software, some companies hire a consultant to write customized software as part of a complete EDI implementation. Even if you buy a translation package, you still may need special subroutines for the translation. Both EDI Solutions and Perwill (through its sales offices and Canadian distributors M.B. Foster & Associates) offer customization of their EDI software as part of their consulting services.

Both DEC and IBM market EDI consulting services to their customers, but HP, at this stage, does not. "We often give it away, but we don't sell it," says HP's Leon Kessler. He and Sandy Whitson frequently speak to customers and to EDI standards groups. Kessler would like to see EDI consulting become one of the services offered by ConsultLine, HP's new program to offer consulting through field offices.

Without outside consulting services, getting your first trading partner on-line usually requires about six months. Working with a consultant can be cost-effective because it can cut implementation time in half. Hiring a consultant can also provide a valuable apprenticeship for in-house staff, if they can work with the consultant throughout the implementation.

Another problem is lack of communication between retailer and supplier, especially when the supplier uses UPCs (uniform purchase codes) to track inventory. The retailer needs to make an effort to work with the suppliers so that their SKUs (stock keeping units) correspond to their suppliers' UPCs.

Some retailers are more helpful than others in getting their suppliers up and running with EDI. Sears and Mervyn's hold EDI seminars and provide extensive documentation. K-Mart is the company most frequently mentioned as being hard to deal with. Rather than study the best way to code each type of merchandise they receive, K-Mart tends to code rugs and curtains the same way it codes apparel, and because each store does its own EDI, small suppliers are flooded with electronic orders as soon as their implementation is running.

EDI Can Benefit Smaller Trading Partners

OF COURSE, IT'S the big retailers who have the most to gain from implementing EDI, but a well-planned implementation can also improve the way a small or mid-sized company handles its paperwork and data entry.

Karen Robinson of L.A. Gear is implementing EDI slowly in spite of having numerous requests from trading partners. Because L.A. Gear purchases rather than manufactures its products, the company's goal is to be able to buy precisely the right goods, i.e., the sizes and styles that are most in demand. Getting that kind of information requires careful planning. L.A. Gear must map its own SKU numbers to those used by its customers so that both can benefit from timely market information.

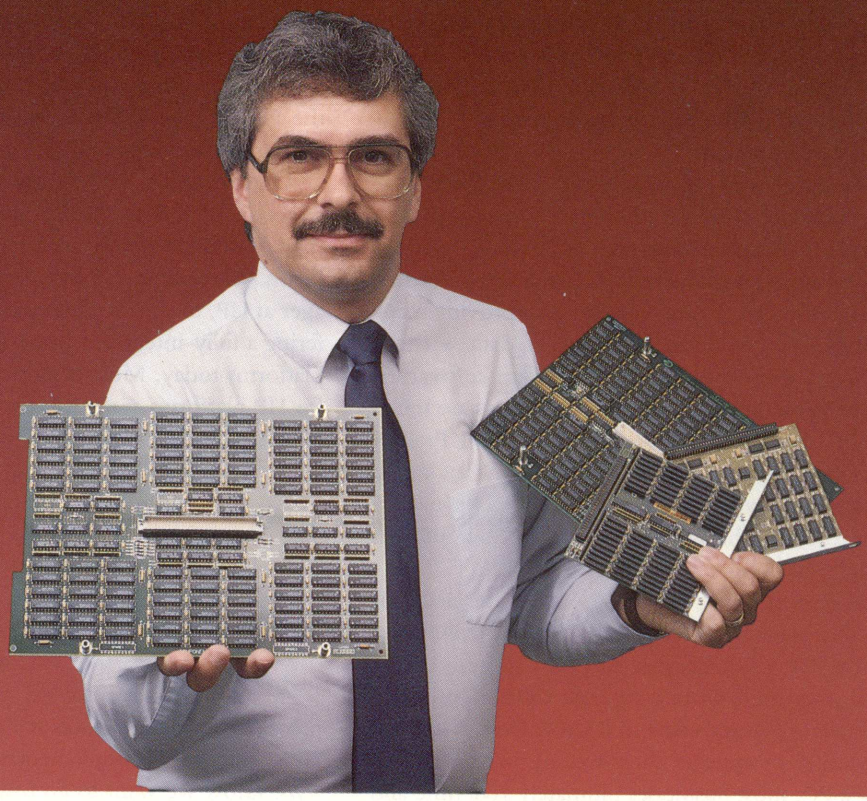
Guess Jeans, another fashion supplier, is relying on EDI to help its sales force identify successful products and weed out poor performers. According to the company's Dave Ryan, "EDI helps us track our inventory and get selling information back to our sales people, so they can back up their hunches with actual sales statistics."

Many companies have found that EDI frees up customer service representatives to do what they were hired to do. Before EDI, customer service representatives had to rekey the data that came in through customer's purchase orders. By eliminating the need to rekey data, EDI increases the accuracy of documents and allows customer service representatives to spend more time solving problems and giving advice on orders.

Should You Start Small?

THESE DAYS MANY wholesalers and manufacturers are under tremendous pressure from large retailers to implement EDI in a hurry. The most important decision for suppliers is whether to start small using a PC for their first trading partners, or set up EDI on a larger system, such as the HP 3000 or 9000 right away.

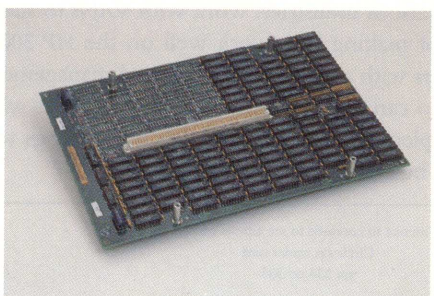
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Chances are, however, if you start with a PC, you'll need to migrate to a larger system in a relatively short time. Unfortunately, very few vendors marketing PC-based EDI also offer HP 3000 or 9000 solutions. A PC implementation is less expensive and can be implemented more quickly than an HP 3000 package, but retailers who have had to convert from PC packages warn against starting small.

The principal attraction of PC-based EDI is the lower cost of the translation software required to prepare your company's internal documents for electronic transfer. It's called "translation software" because it translates proprietary internal formats to standard message formats. (Some vendors also provide mapping software that lets you send and receive data without rekeying.) However, even though PC translation software is less expensive than minicomputer versions, VAN costs are much higher because PC data transmission is slower. Karl Pieleck of Evenflo (Ravenna, OH) notes that his interconnect charges on OrderNet (a VAN) went from $2,600 when he used a PC EDI program to $730 when he used Perwill's EDI/3000 for electronic trading.

Also, a hidden cost of doing EDI on the PC is the need for data conversion. For most users, data received on the PC must be uploaded to the HP 3000. Because the PC data arrives in a flat file, a programmer must write a separate COBOL program to convert each trading partner's data to IMAGE files. Although suppliers may be able to appease their trading partners more cheaply by using a PC, most businesses ultimately save time and money by implementing once on the HP 3000.

Suppliers like Darrell Randall, who had to start over when Deflecto Shield moved from a PC package to the HP 3000, recommend that you be absolutely certain you won't be adding trading partners or increasing your volume in the future if you plan to buy a PC-based product with no growth path to a larger system. Implementing an EDI package takes several months of testing and fine tuning, and it's all wasted effort if the PC package you start with doesn't work the same way as the minicomputer package does.

Unfortunately, HP customers in general find a very limited selection of EDI translation and mapping software offered for their systems — compared to what's available on other platforms. According to Leon Kessler, EDI market program manager at HP, there's no software supplier currently capable of offering a fully-integrated, 100 percent-automated solution on HP platforms today. Most of the companies offering EDI products for HP platforms are small, and few have the resources to fund extensive product development.

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How HP Can Help With EDI

WE'VE ALL HEARD that HP wants to be our business partner, but when it comes to EDI, the company has not yet worked with software suppliers to provide the kind of tools it's customers need. In reference to HP's internal EDI implementation, Sandy Whitson comments, "We know we want to go toward a client/server implementation of EDI, but the tools aren't there yet."

Despite the fact that HP has yet to organize EDI programs for its customers, the company itself has considerable expertise in trading electronically with customers and suppliers around the world. Whitson's group has implemented *EDI Central*, a company-wide interface that uses multiple gateways and specially designed software connected to HP's internal network. Via a special interface to HP Desk, divisions send their EDI transmissions to one HP 3000 that handles the exchange of documents between HP and its trading partners.

It's time that HP follow DEC's recent example and share its expertise in EDI. HP should share its experiences in implementing EDI with customers so that they too can prepare for client/server computing by learning how to set up a centralized EDI server. In addition, HP should make arrangements with software vendors to create EDI products geared to the special needs of trading partners in various industries, work with VANs to show them the nuances of making RJE work well on the HP 3000, and form partnerships with systems integrators and management consulting firms who can offer services to small businesses who are pressured to implement EDI quickly. Are these things too much to ask from a business partner?

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Create An Information Publishing Environment

MEDIA INDEPENDENCE

[By Doug Iles]



Contending with the volume of electronic and paper information today's businesses generate can be a logistical nightmare. Many companies run into organizational difficulties as they attempt to cope with large amounts of internal and external documentation. Fortunately, however, today's electronic information glut can spawn tomorrow's information management breakthrough. As Hewlett-Packard recently learned, standardized information management techniques can decrease document distribution time and reduce your company's publishing costs.

HP discovered that the way to integrate information management techniques into its day-to-day operations was to implement an automated information publishing environment. This environment incorporates not only printed materials but also information distributed through online services, software and CD ROM. Manuals, product updates, databases and technical bulletins all can be distributed electronically, and *then* displayed, processed, stored and printed.

Of course, this kind of facility requires a high-degree of "media-independence,"

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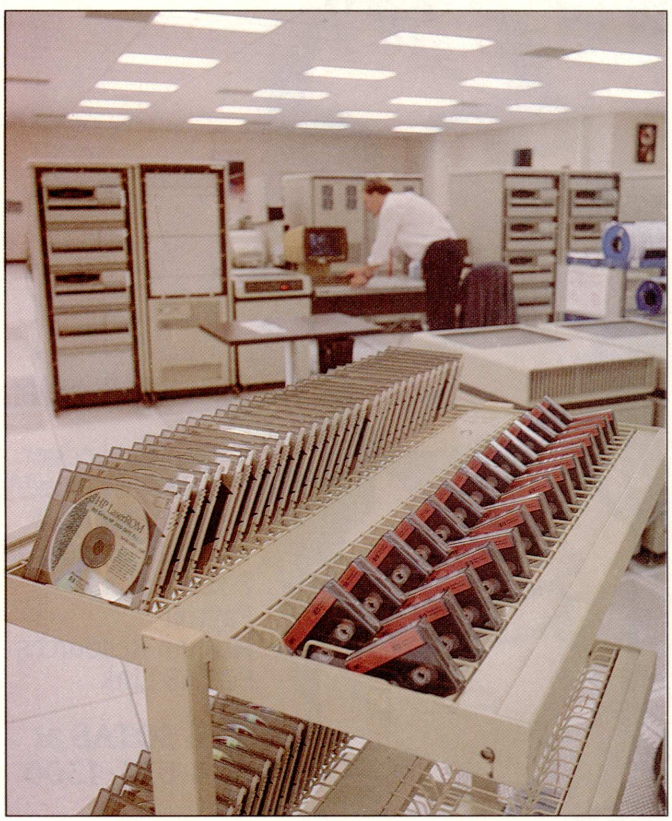
HEWLETT PACKARD
User Referenced Solution

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which means developing a standard document file format for use throughout the company. Companies that want the advantages of an automated information publishing environment must first face the challenge of organizing and preparing their documents for electronic interchange and reproduction in various media.

Data Preparation

A GOOD EXAMPLE of the data preparation process is the cycle required for the distribution of information on CD ROM. In 1987, HP realized it could use CD ROM to provide large amounts of support information to its customers in a timely, reliable and consistent manner. The company now distributes more than 500,000 pages of computer-system documentation per month on CD ROM from its SRDO facility in Mountain View, CA. In addition, by leveraging its existing CD ROM publishing environment, HP launched a CD ROM service strictly for internal purposes, which distributes bulletins, newsletters, competitive articles, promotional information, problem resolutions and other documents to system engineers and customer representatives worldwide.



HP's Software Replication and Distribution Operation (SRDO) delivers the high-volume media reproduction component for HP's information manufacturing.

While developing this CD ROM publishing environment, HP discovered the need for a standardized method of preparing documents for transfer to disc. Of course, in order to make the process cost-effective, data preparation procedures had to be automated as much as possible. Automation was necessary to permit various forms of documentation data to move smoothly into the CD ROM production cycle.

HP's user documentation existed in a variety of different formats. Some documents were stored in common electronic publishing formats, but much of the technical documentation was available only in platform-specific word processor files. Important support information existed in electronic databases, and this data needed to be extracted and formatted. Still other materials, which had been sent to the printers as paste-up documents, offered no electronic versions at all. The challenge was to take all these different kinds of manuals and data and convert them to a consistent format.

Before you can develop automated data conversion procedures, you must first decide on a standard document file format. HP investigated a variety of document formatting standards before adopting the Standard Generalized Markup Language (SGML), an international notation standard. SGML was selected because it allows you to perform automated processes on coded files and permits a digital-oriented approach to information management, automated formatting and language translation.

With SGML as the basis, Hewlett-Packard created its own data type definition, HP Tag. HP Tag designates specific text objects that can be formatted for various, but consistent, styles used for technical documentation. In addition, HP Tag facilitates the interchange of documents within the corporation.

Data Conversion

AFTER DECIDING ON A standard format, HP was faced with the conversion of hundreds of documents into HP Tag . Conversion was achieved through the use of three methods: automated coding, manual coding and scanning.

Software was developed that enabled automated coding of some existing electronic documents into HP Tag. However, this approach could only be applied to documents that were appropriately structured, such as those in Copy Markup Language (CML) or UNIX System V's TROFF formatting. Documents without this type of structure required manual coding.

The manual coding process demanded that each document be placed into a standardized electronic form containing ASCII text. When no corresponding electronic form was available, paper documents were converted to text files using an Optical Character Recognition (OCR) system. After conversion, the electronic copy was marked up by hand using a text editor.

HP Tag handled the text component of documents just fine, but illustrations required another solution. There were two pri-

> Once you select data and image file formats, you must index and organize your documents in a fashion suitable for CD ROM.

mary considerations for graphic images: They had to be capable of being displayed online along with the text, and they had to print with reasonable speed.

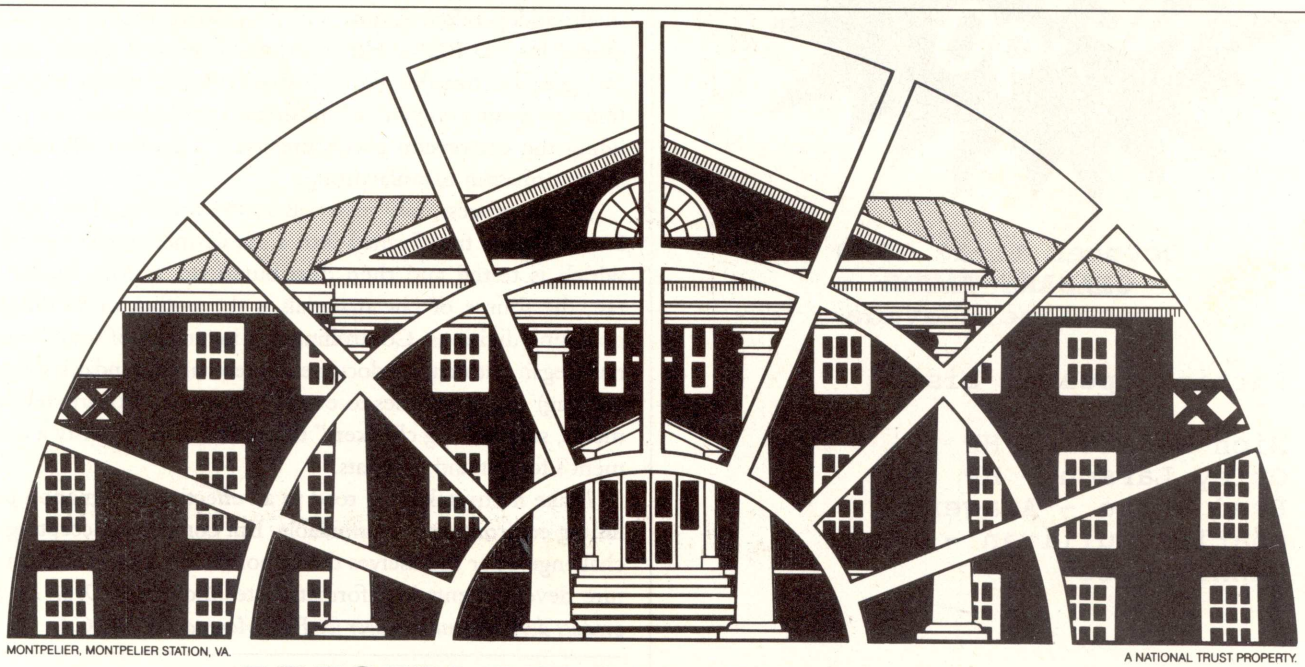
Illustrations also required tags to link them with their associated text and a standard file format for storing images. Existing tags within HP Tag provided image file references, and the Tagged Image File Format (TIFF) was selected for image storage. The TIFF standard, developed by Aldus Corp. and Microsoft Corp., features support for most input devices, such as scanners, cameras, word processing and paint programs, and several data compression techniques.

Indexing And Testing

ONCE YOU HAVE SELECTED DATA and image file formats, the next step is to index and organize your documents in a fashion suitable for CD ROM. To develop its final CD ROM product, HP depended on a document formatting program that translated the complex structure of the tagged documents into a device independent format (DVI). Next, the program output was turned into ASCII code by means of a DVI-to-ASCII driver.

For fast, effective retrieval, the ASCII files must be indexed. HP selected a retrieval engine called Ful/Text from Fulcrum Technologies, which can search index files and locate documents by means of any significant word within the text. It also provides a specification for the proper indexing of ASCII files and serves as a tool for building a database and compressing/encrypting data so that it's retrievable only when the correct interface is used.

The logical layout of ASCII files in HP's CD ROM products conforms to the ISO 9660 file format, which defines the struc-



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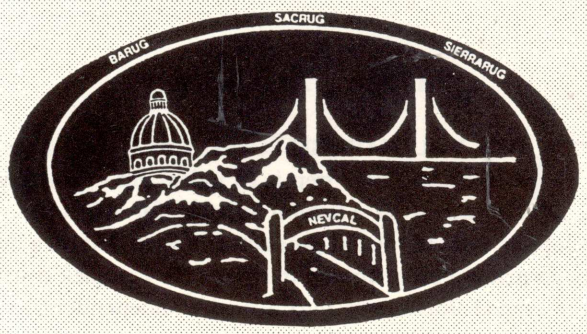
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ture for CD ROM data files. ISO 9660 has been accepted by the CD ROM industry and the International Standard Organization (ISO) as the standard for volume and file structure of data on compact disc. It's a non-proprietary, read-only structure that can be read by virtually any combination of drives and computers. ISO 9660 uses a tree-structured approach similar to that of MS-DOS and UNIX, with a volume descriptor containing pointers to two directory tables: a root directory table and a two-level path table.

For an operating environment, HP chose its own HP-UX. UNIX is well-suited for handling text information, and since HP electronically publishes over 400 manuals every month with each one containing several dozen files, HP-UX seemed the logical choice. When implementing a publishing system, it is every bit as important to choose an operating environment that can collect, organize and process your volumes efficiently as it is to select a flexible document file format for data transfer.

Publishing As A Manufacturing Discipline

HEWLETT-PACKARD'S INFORMATION publishing process illustrates the production cycle required to move from multiple document formats to a standard, media-independent format and from there to the format required for CD ROM. However, as mentioned above, one of the greatest hurdles you must overcome when trying to improve your company's information management is streamlining the conversion procedure itself, a process HP refers to as "information manufacturing."

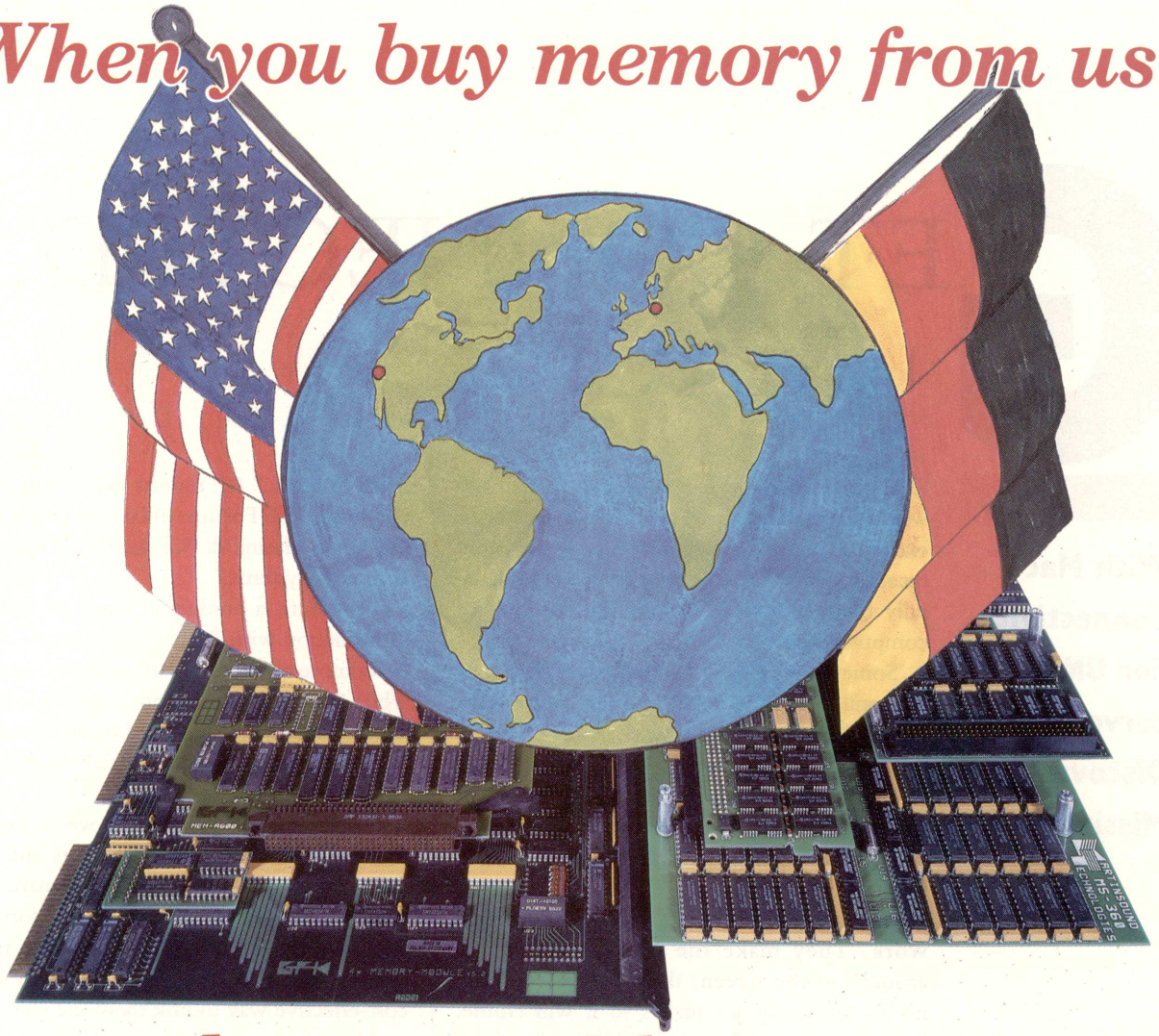
In this process, raw materials in the form of electronic information are transformed into a media-independent product, which is tested and then distributed on various media. At HP, the source of raw materials is the output of 50 different operating divisions. Controlling this inventory of source materials began with setting document interchange standards (SGML/HP Tag) and continues to evolve with new software developments, such as "tag checkers" that automatically verify a document's format and contents.

Make no mistake, the road to an effective information publishing environment is formidable. But companies accepting the challenge offer themselves the opportunity to capitalize on future developments in information technology.—*Doug Iles is a product development manager for HP, Mountain View, CA.*

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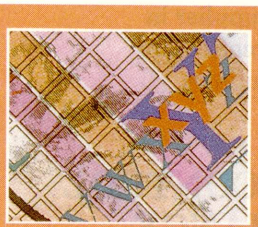
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GET CONNECTED, MAC!

With Mac Connectivity For UNIX Servers, HP Discovers A Missing Link



CONNECTIVITY

Bill Sharp

Computer users have a tendency to identify with the gear they use. Folks always have been excited about what horse they rode — or, more recently, over what car they drive — so naturally this gets extended into the confines of computerdom.

Somewhere, there's a dedicated HP 9825 user who still loves using RPN (most 9825s are serving as door stops these days). And naturally, there's a growing throng of folks sold on UNIX in its multitudinous forms. There are even (promise you won't laugh) a lot of people happily chunking along with those silly little Macintosh things.

Yes, people really use them to do actual work. They make the pretty icons move around on the screen, they change the little noises the computer makes so it will chime, bong or cheep at them — all kinds of critical-path stuff. We all know that Macs are far outnumbered in the serious world by *real* PCs, but there are a few of them out there — about three million, says International Data Corp. In fact, I usually try to keep this a secret, but one of those three million sits opposite my PC/AT clone.

Dave Hudson, director of the OEM/UNIX business group at Pacer Software (La Jolla, CA), says Macs are even more significant than their numbers first indicate. "In 1989, 42 percent of Macs sold were projected to go into business applications, and another 14 percent into government," Hudson says. "That means 56 percent of those Macs went into environments where servers are needed."

Business and government users usually are on some kind of a network. Where Macs are used, they're likely to be there in large numbers. Hudson notes, "There are huge departments using Macs at DuPont, GE and Lockheed, where they may have literally thousands of them." HP reports that "more than 40 percent of the Fortune 1000 companies are using Apple Macintosh PCs and HP 9000 or Apollo computer systems."

Scott Safe, a product manager of HP's joint introduction with Pacer of software to connect Macs more tightly into HP networks, notes that, while HP workstations and Macs often are used in the same firms, they tend to be used for different applications and haven't shared much communication.

According to Safe, "When we've looked at the needs of customers, Mac users and workstation users are in such different markets that they generally don't need to share information. But DOS systems and Macs frequently need to share." And a UNIX-based server is the most cost-effective way to link them, he says.

Many firms, says Safe, have large numbers of Macs, OS/2 and DOS systems, and getting communications moving back and forth between Macs and OS/2 or DOS systems on networks has been difficult or expensive to date. The difficulty here isn't simple point-to-point file transfer. Even my own Mac and PC happily shuttle text files back and forth using one of several simple solutions that have been available for a while.

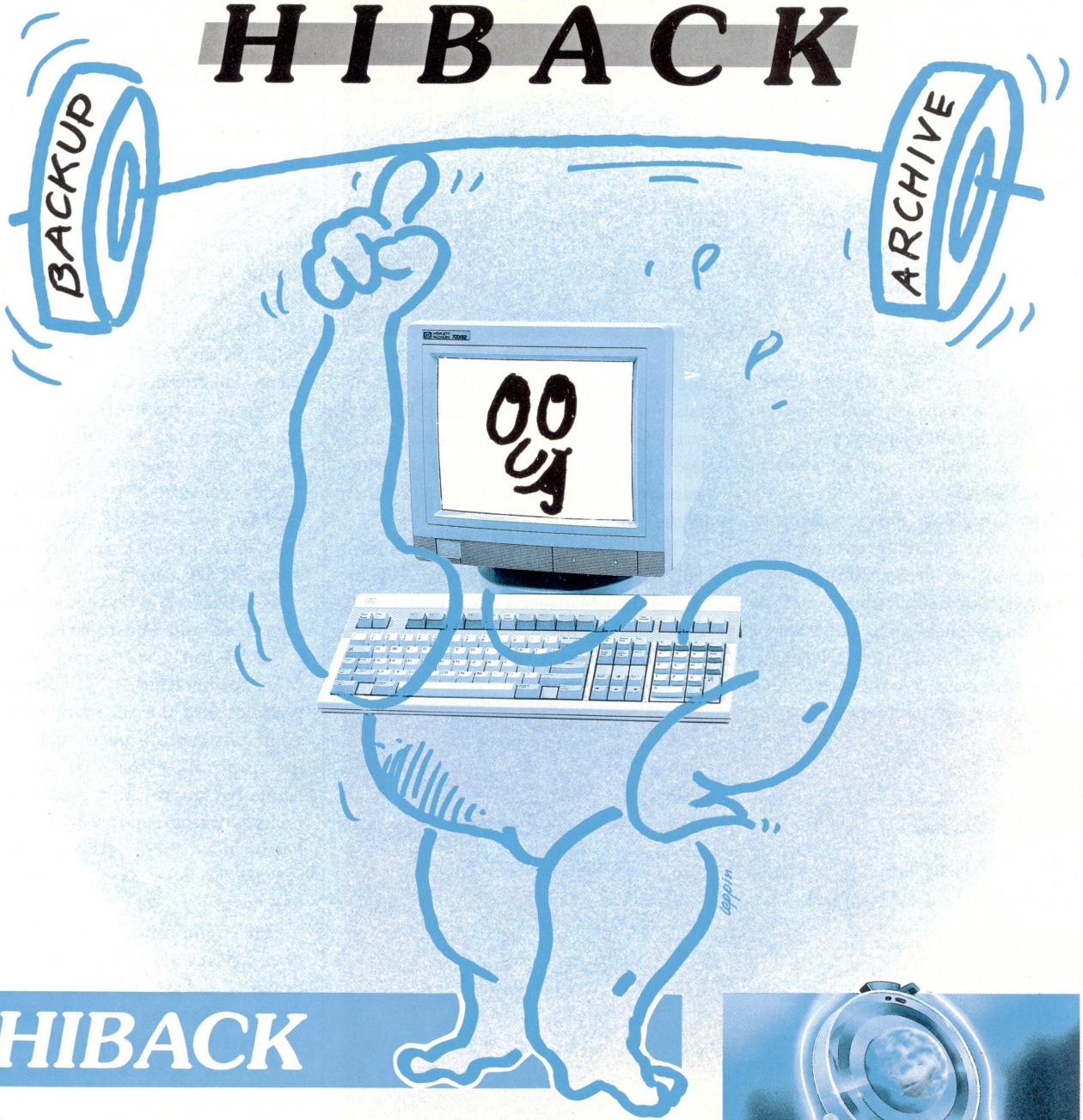
The tough part is helping large numbers of Macintosh, DOS, OS/2 and UNIX systems on one network share centralized applications, databases and communications facilities. This type of server application, particularly when executed for large numbers of systems, requires the kind of computation power UNIX workstations have and PCs and Macs don't. Until now, HP only has been able to provide terminal connectivity to Macs, using terminal emulation software.

Pacer Software has taken enhanced versions of its PacerLink, PacerShare and PacerPrint software and made them available on HP's servers

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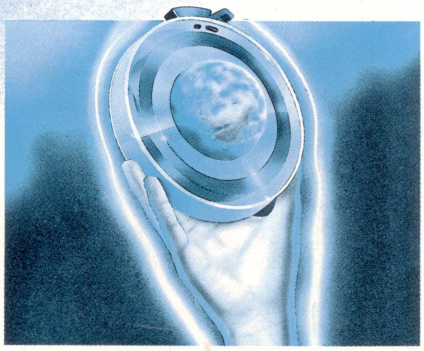
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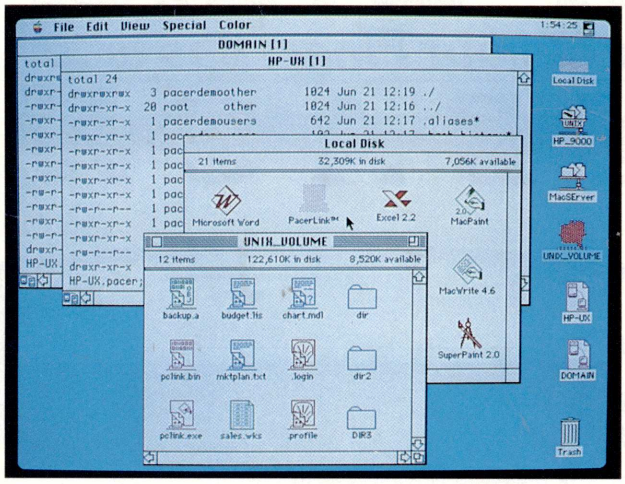
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Aside from running on the HP 9000 and Apollo Domain servers, HP expects Pacer to run on servers based on the HP/Apollo Series 400 merged platform.



to provide an easy link with Macintosh systems. Mac users see a typical Mac-style user interface that they can use to tie into files, applications and printing services from an HP server.

PacerLink provides access to communications services including asynchronous communication or Telnet through multiwindow terminal emulation (see *Figure 1*). PacerShare enables an HP 9000 or Apollo System to function as a large file server for Mac users, providing a unified file system. PacerShare is an implementation of Apple's AppleShare file server. PacerPrint allows both Mac and HP users to take full advantage of industry-standard Adobe PostScript printers, such as the Apple LaserWriter.

Some of the Pacer magic comes from Lan Manager x (no relation to X Windows). Lan Manager x is software jointly developed by Microsoft and HP to manage file and print sharing and facilitate client-server systems. This includes a nifty item called "named pipes."

Named pipes, says HP's Scott Safe, "is a peer-to-peer application-programmed interface that's an integral part of both OS/2 and Lan Manager x." It comes to you from Microsoft and is being rapidly adopted by vendors in an example of how the PC and UNIX workstation markets are growing toward one another by sharing some of the same systems.

"With Pacer," says Safe, "we now have Macintosh terminal, file and print sharing through HP 9000 Series 300 and 800 and Apollo Domain servers." He says HP also expects Pacer to run on servers based on the new HP Apollo Series 400 merged platform.

"From a single Mac, users now have file connectivity with these servers using one networking product," says Safe. "Pacer will store files on the server from the Mac, and DOS and OS/2 users on the same server network can retrieve the files using Lan Manager x."

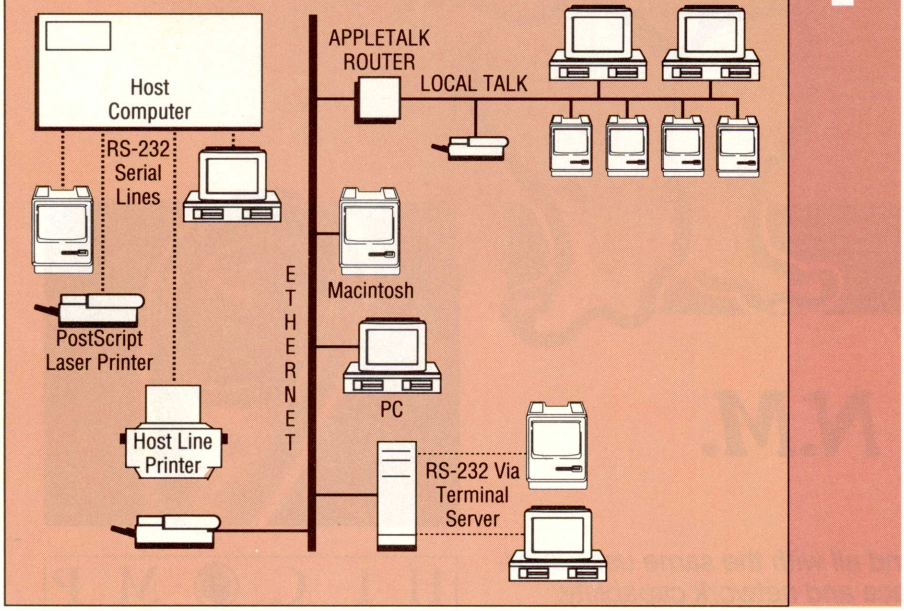
Pacer's Hudson says earlier versions of PacerLink and PacerShare are used in the DEC and OS/2 markets to provide Mac connectivity. "In bringing our products into the HP market, we made significant improvements, such as support for Appletalk—Phase II," he says. As Apple has improved its implementation of networking support software, Pacer has included these versions to keep the system as easy as possible for the Mac user.

The significance of Pacer's link between Macs and UNIX servers comes down to dollars and horse sense. More firms need strong networks for sharing data over large portions of the company, and UNIX workstations make strong, expandable servers.

Macintosh systems often are used as dedicated servers for Macintosh networks. "A Mac server can handle five to maybe 15 client systems, and then it runs out of steam," says Safe. "Pacer Software allows you to use the higher performance capabilities and scalable growth of a workstation server."

"We have HP-PA RISC-based servers running at about 100 mips," he says. "The best Mac server runs at about 5

FIGURE



PacerLink is an advanced terminal emulation and desktop connectivity program that allows a Mac or PC to communicate with many host computers.

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mips, even if based on the 68040. Macs are graphically oriented and use up a lot of power to support that interface." HP claims that one PA-RISC server can support up to 200 Macintosh users in a workgroup network. HP credits the difference to multiprocessing and HP's communications capabilities.

This boils down to a price/performance advantage that may bring a good many Macintosh users into the HP fold. Pacer's Hudson says the effort with HP came about because of HP's "eminent position in the UNIX market," including "very attractive server price/performance."

DEC started its own efforts at Mac connectivity earlier, as did Sun, but HP for the moment may have an edge because of its server lineup and the improved Pacer software that won't be available on the other brands for a while. PacerLink and PacerShare software each sell for $1,200 per server, base price. PacerPrint is $1,000 per server, base price. All three products will be available by this fall, says HP.

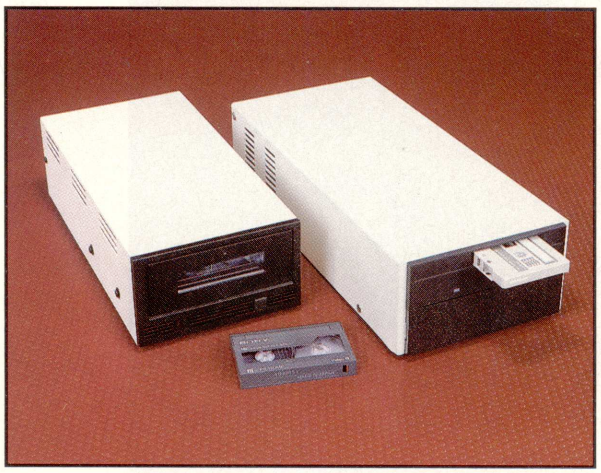
Plenty of room for improvement remains in the growth of heterogeneous networks.

Plenty of room for improvement remains in the growth of heterogeneous networks, server-based or otherwise. Even with the Pacer products, Mac users can't yet take full advantage of a UNIX database in a client-server configuration, although PC users can, says Safe. "When using a PC on a UNIX server network to run a database, instead of having to move an entire file down to my PC, I can select just the records I need and leave the rest on the server," Hudson says. Right now, a Mac user sharing a UNIX server database can't select records because of limitations in the Apple datalink language, says Safe. He notes that the Mac user has to pull down the entire file, which is cumbersome. Once that link language is released for developers to use, that problem will be solved, he says.

Long term, users expect the most transparent links possible between all types of computers on a variety of networks. Providing Macintosh connectivity for UNIX servers isn't only a marketing opportunity for HP; it's a matter of survival.

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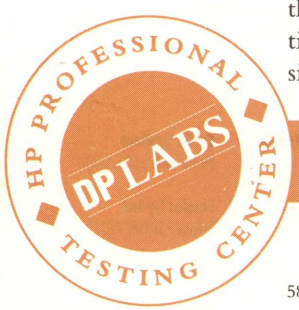
Tymlabs Introduces First True QUIZ Compiler

Probably the most popular fourth-generation language (4GL) for report writing on the HP 3000 today is QUIZ, a software product from Cognos Corp. (Ottawa, ON). Although QUIZ has been available on the HP for 10 years or more, Cognos hasn't released a true compiler for the product. QUIZ programs must be interpreted each time they're run. This results in high CPU overhead and lengthy execution times when contrasted with the execution of the same functionality through a compiled program written in COBOL, FORTRAN or another third-generation language.

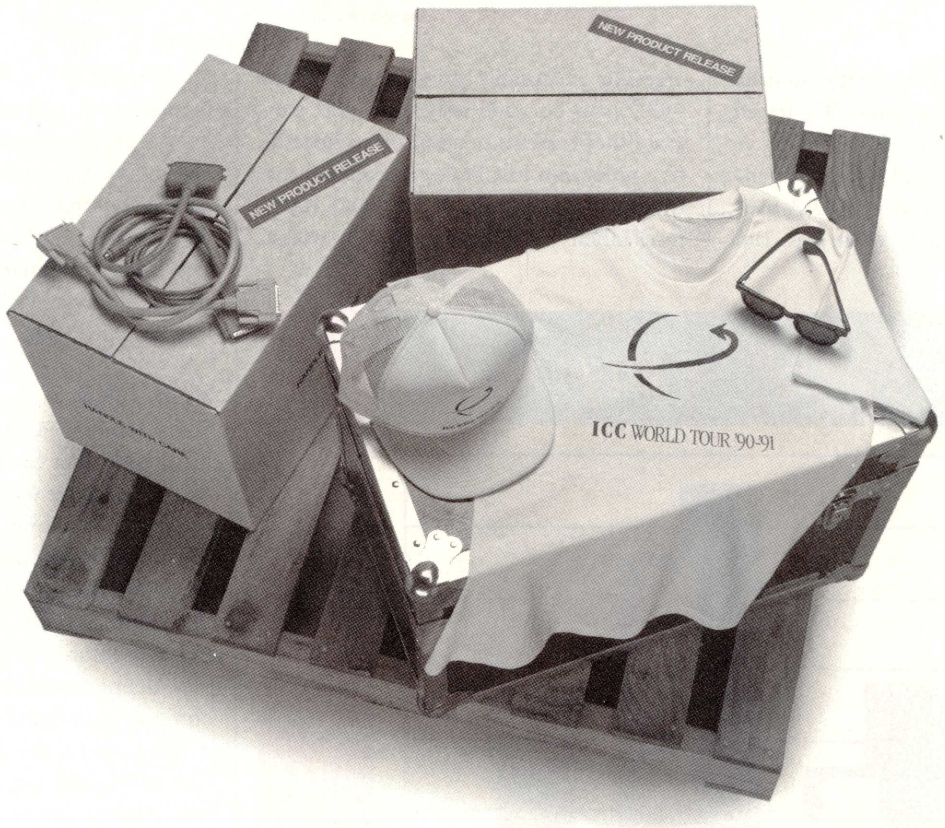
We use QUIZ in our shop, and although it sometimes takes a disproportionate share of CPU resources, it has significant advantages over COBOL in ease of use and reduced development time. Wouldn't it be nice if QUIZ could retain its 4GL advantages and run with the speed of COBOL? Someone at Tymlabs Corp. (Austin, TX) must have asked that same question, because Tymlabs has produced PDQ for QUIZ, the first true QUIZ compiler.

Turbocharging Features

PDQ is a straightforward product. It's only function is to transform QUIZ source code into program files, executable via the RUN command, in the same way you'd run a COBOL application program. PDQ supports nearly all of QUIZ's features and syntax, including conditional execution (via "CC=") and the use of subfiles. The few QUIZ fea-



Joel Martin



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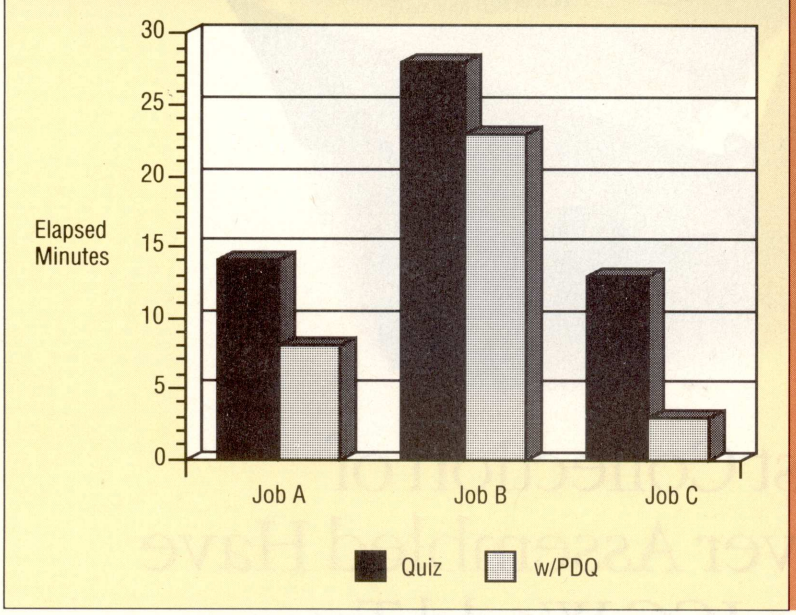
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tures not supported by PDQ include some of the SET commands. We tested PDQ Version 2.21.

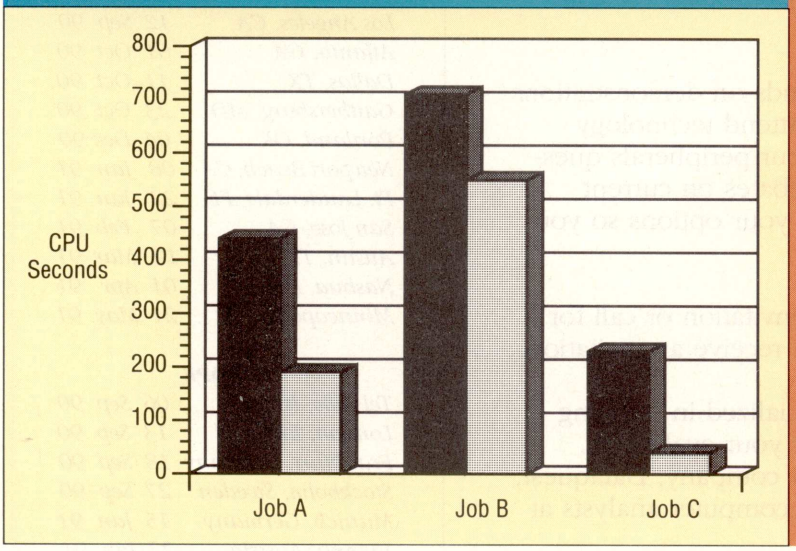
You might think of PDQ as inexpensive turbocharging for your QUIZ programs, and that's exactly what it is. But creating executable program files from QUIZ source code may give you several other benefits in addition to impressive reduction in CPU overhead and run times. If you purchase the PDQ Run-time Library, PDQ programs are portable to other HP 3000 CPUs. Development of menu-driven systems that run programs or use process handling may be simplified by using compiled, rather than interpreted, reports. PDQ is also compatible with OMNIQUIZ and OMNIDEX, from Dynamic Information Systems Corp. (DISC; Denver, CO) for users of those indexing products.

FIGURE 1



PDQ for QUIZ improves run time performance.

FIGURE 2



Programs that are I/O-bound may show a large drop in CPU use with PDQ.

Step 1,2,3

The nature of PDQ requires a multistep installation, but each of the three steps is simple and very well documented in the Quick Start Guide provided with the documentation. In addition to restoring the PDQ files, you must install PDQ's Run-time Library in one of your segmented libraries (SLs), activate the PDQ user-defined command file (UDCs) and compile your QUIZ schema with PDQ.

Restoring the PDQ files is done manually, and installation of the run-time library into your system SL is done by a supplied jobstream. You can choose to install the run-time library in the system SL or in a group or account SL. The process takes about 10 minutes.

After the files have been installed, you'll need to recompile your QUIZ source schema with the PDQQDD program supplied with PDQ. To do this, issue a command similar to this:

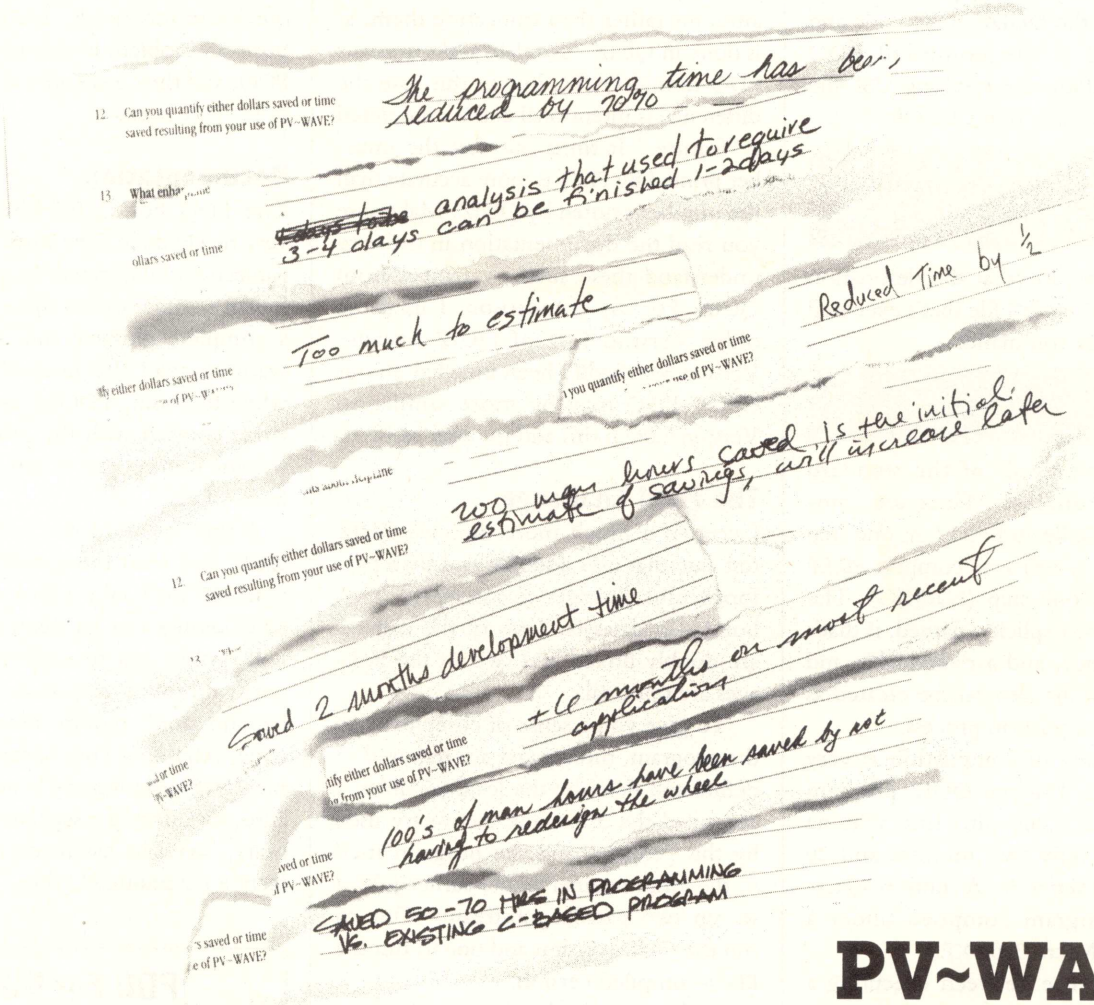
```
:PDQQDD SCHEMA,PDQSCHEM
```

PDQQDD notes any errors or warnings during the compilation and prints a summary of the number of errors and warnings, along with the CPU time and elapsed time, when the job is done. My 389-line schema compiled in about one minute with no problems. This step doesn't need to be performed again unless you make changes to your database structure or Cognos schema.

Test Results

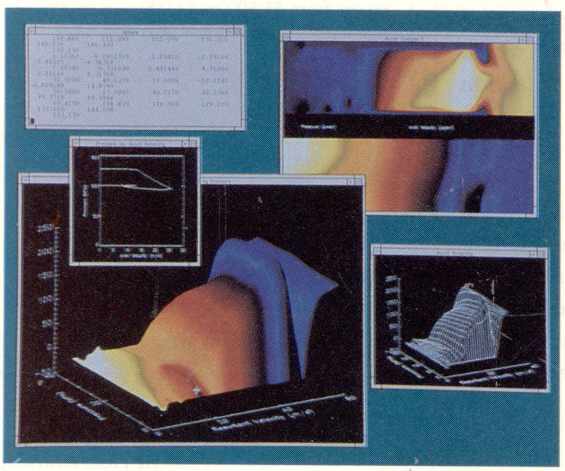
The first thing we noticed about PDQ is how similar in behavior it is to COBOL and other third-generation language compilers sold by HP. The major difference is that in compiling a QUIZ program, you also must specify the PDQ

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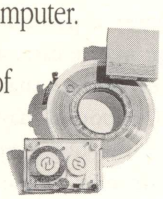
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schema file in the PDQ command:

```
:PDQ DMRP04,PDQSCHEM
```

In the above example, the file DMRPR04 is the QUIZ source code and PDQSCHEM is the compiled PDQ schema. PREPing the resulting USL file is done exactly as it is in COBOL:

```
:PREP $OLDPASS,DMRPR04P;MAXDATA=3100
:SAVE DMRPR04P
```

Finally, you arrive at the destination — a compiled PROG file that's executed with the RUN command:

```
:RUN DMRPR04P
```

PDQ supports all of the standard compilation variations. There are commands to compile and PREP in one step (PDQPREP), as well as to compile, PREP and RUN in one step (PDQGO). The USL file can be explicitly named, if that's your preference, and a redirectable and renamable list file also can be created as part of the compilation process.

PDQ's speed of compilation is very reasonable. A 374-line QUIZ program referencing a 3,000-plus line schema compiled in only two minutes and 20 seconds on a Series 58. A more reasonably sized program compiled under a minute on a Micro 3000 XE.

The difference between executing a standard QUIZ program and a PDQ-compiled program is illustrated below:

```
:QUIZ  :RUN DMRPR04P
USE DMRPR04
...
EXIT
END OF PROGRAM   END OF PROGRAM
```

I ran a number of tests on PDQ. The decrease in elapsed run time ranged from a low of 15 percent to a high of 74 percent. CPU use always dropped by at least as great a percentage as the run-time drop; in one case, as much as 83 percent. (Your mileage may vary.) Programs that are I/O bound may show a large drop in CPU use, but a much smaller percentage drop in elapsed run time. The improved performance of some of my sample runs is shown in *Figures 1* and *2*.

PDQ does perform some functions in a slightly different way than QUIZ. Perhaps the most notable (and initially alarming) is that PDQ rounds numeric amounts rather than truncating them, as is done in QUIZ. Tymlabs seeks to make PDQ mimic QUIZ, but in this case the difference is intentional and is considered a "feature." It turns out that the number printed by PDQ is more accurate than the number printed by QUIZ. Make sure you read the documentation in order to understand these subtle variances from QUIZ. For my comparison, I used the older Version 5.01 of QUIZ because Version 5.06 hadn't been installed on our CPUs. PDQ may be more similar to Version 5.06 in this and in other respects.

The Final Challenge

I created a much more difficult QUIZ test case that uses a subfile and then performs nine linkages to associated TurboIMAGE datasets. Two of the datasets are doubly linked and two of the linkages are optional.

To give you a sense of complexity of the program, three pages are required to define and describe the local variables. I compiled the 3,144-line dictionary used by this program and the program itself in the same manner as the earlier jobs. I set up two parallel jobstreams: One to run the QUIZ version and one to run the PDQ-compiled version.

Unfortunately, the PDQ version was unable to duplicate this report—it produced no output. I was able to create several variations on the program that accessed the subfile, and they worked without a problem. I expect that if I divided the larger program into two parts with an intermediate subfile, PDQ would have worked with a significant reduction in CPU use and elapsed time. This approach also might make the program easier to maintain.

Does this suggest that you might reach PDQ's limits in your environment? Not necessarily. The data structures underlying my problem case are denormalized to the edge of abnormal. I expect that few of your reports require concurrent access to eight files with two or more paths through two of those files. Although PDQ couldn't handle one of our most complex QUIZ programs at the time of this review, Tymlabs does respond quickly to user needs. For instance, I reported a problem in an earlier version of PDQ, and they were able to include a fix in the 2.21 release.

Documentation

The PDQ For QUIZ User's Guide is very nicely done. The manual is well-organized and illustrated. It contains a sufficient number of examples and includes a complete glossary and index. You'll want to read the manual thoroughly when first using PDQ in order to familiarize yourself with the program's more esoteric features and its minor differences from QUIZ.

If you're a moderate to heavy user of QUIZ and want more horsepower from your HP 3000, take a look at PDQ. The CPU savings can be tremendous, and it will enable you to support more users with improved response times. These benefits don't require rewriting source code, retraining your software development staff or losing any benefits of QUIZ. Also, by offering a separate run-time library, Tymlabs has made PDQ cost-effective for multiCPU sites. ■

PDQ For QUIZ

SYSTEM REQUIREMENTS: HP 3000 running MPE V or MPE XL

PRICING: $3,500 (first copy, Micro 3000) through $14,000 (first copy, HP 3000 Series 960) plus annual maintenance. Right to copy available at discount. PDQ Run-time Library ranges from $1,500 to $4,000 plus an annual maintenance fee. 90-day warranty.

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HP 9000/834

The Best Workstation Is The One People Use



David W. Bynon

What makes a workstation a *great* workstation? Is it mips, graphics processing speed and sub-20ms disc access time? Or, is it the ability to get the job done?

This reminds me of a recent Apple Macintosh commercial. Two managers standing outside a glass computer room watch employees wait in line to use a single Macintosh, while dozens of IBM PS/2s, ATs and PC clones sit idle. One manager asks the other "which PC is the best?" The second manager responds, "It's the one with the most mips, memory and gigabytes." "I don't think so," replies the first manager, "I think the best PC is the one people use." Bingo!

The same holds true for workstations. Sure, mips, memory, graphics speed, graphics resolution and fast, plentiful disc storage are all necessary components of a great workstation, but even a fully-equipped workstation isn't worth squat if you can't use it.

I recently put the HP 9000 Model 834 through its paces in our Lab, and what I discovered was a complete system that engineers, designers and software developers can *use*.

The Basics

The HP 9000 Model 834 is HP's entry-level RISC workstation. The central processor, a 15 MHz HP-PA RISC chip,

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produces 14 mips. The 15 MHz floating-point coprocessor is rated at 2.02 Mflops. Standard memory is 8 MB of ECC RAM, expandable to 96 MB, and standard I/O ports include the HP-HIL, HP-IB and LAN.

The system features a single CTB (central bus) that interconnects the main processor, memory, LAN interface, HP-IB interface and the display controller. Unlike the Model 835 processor, the Model 834 is a restricted-configuration system. The backplane of the base Model 834 has slots for two additional memory cards and one additional Channel I/O Adapter slot. The CIO slot can be used for options such as the six-channel asynchronous multiplexer.

DBMS, GKS, the X Window System, NFS and HP Network Services.

Inside The CHX

The CHX graphics subsystem is based on the HP A1020H Display Controller and the HP 98556A Graphics Accelerator. The CHX uses a traditional four-stage pipeline architecture to achieve high-performance 2-D vector processing. Dual-ported memory is used between each pipeline stage. This allows each stage to operate independently, increasing throughput. The graphics processor itself is a dedicated MC68020. It works in conjunction with a 2-D integer-based transform engine to provide real-time, interactive pan and zoom functions for 2-D applications. A 32-bit graphics bus connects the accelerator to the display controller.

FIGURE 1

```
menu = example(top, Pulldown, "Commands...");
make_object(menu, "run", MenuButton, "Who", NULL,
        make_event(User, "Select", run_who()));

function run_who()
{
  send_command("who | sort" & get_context());
}
```

With EDL you can simply create a menu and link it with a function.

The customer has a choice of three graphics-coprocessors. The lab system came equipped with the CHX, a high-resolution, 10-plane, 2-D color processor with an integer-based graphics accelerator. The monitor is a 19-inch Trinitron (1280 x 1024 resolution) with an antiglare coating. A 16-inch monitor is optional. (For 3-D color, solids rendering applications, order the SRX or TurboSRX model.)

System software features include the HP-UX operating system (SVID-compliant), which is object code compatible with all HP 9000 Model 800 systems and source code compatible with all HP 9000 Series 300 systems. The system has support for the FORTRAN 77, C and PASCAL programming languages, ALLBASE/

The HP A1020H Display Controller itself is no slouch. It supports 1280 x 1024 displayable pixels on eight planes. The eight-plane frame buffer supports 256 simultaneous colors out of a 16.7 million hue palette. In a second mode, the eight color planes can be used as four double-buffered planes. This is necessary to achieve interactive pan and zoom. Two additional planes allow the Model 834 to do cursors, windowing, character generation and menus independently of the main frame buffer. Circle, vector and polygon generation is provided by a hardware scan converter.

Through a multifunction cable, the display controller connects to human interface devices, such as the monitor, keyboard and mouse. The cable supports three signals: HP-HIL, audio and RGB. The Human Interface Loop (HIL) is an HP standard interface for keyboard, mouse and other compatible devices.

Graphics performance of the Model 834 is rated at 276,000 vectors per second. Even without the accelerator, the Model 834 can generate a respectable 116,000 vectors per second.

The System Processing Unit

The Model 834 processor is contained on a single board called the System Processing Unit (SPU). At the core, is a single-chip HP-PA RISC processor with 140 hard-wired instructions. HP's RISC design uses a load/store design and register-to-register operations to reduce memory access times. Performance is further enhanced by 128 KB of high-speed cache. The cache memory reduces CPU requests for instructions and data stored in main memory.

Like other RISC processor designs, the Model 834 processor pipelines instructions. Up to three instructions, in separate stages of operation (i.e., fetch, execute or store), can be in the pipeline at once. The gross effect is that one instruction will complete every 66.7 ns. That's one instruction per CPU cycle. Most CISC processor instructions take three or more CPU cycles to complete.

The SPU manages all processor, memory and I/O functions for the system. The SPU accesses memory and I/O devices via the 10-MHz central bus. The central bus provides a 32-bit data path and supports a sustained data rate of 22.3 MBps. The SPU accesses the HP-IB (disc and tape adapter) and the LAN adapter through a Channel I/O Adapter, which connects to the central bus.

First Impressions

When you've used as many workstations as I have, you become numb to the fact that most of them have as much raw horsepower as midsize minicomputers. Yes, the Model 834 is fast. In fact, compared to the RISC workstation with

which I am most familiar, the DECstation 3100, it's very fast. Yet, this isn't what impresses me the most about the HP. I am most impressed by the total package.

The HP 9000 Model 834 is a complete system — it's not a pile of hardware today with a promise of software tomorrow. Our lab system came equipped with CD ROM tools, Soft PC, GKS, AllBase, compilers, an integrated software development tool, the Motif GUI, and VAX-to-HP migration software. In every sense, HP has created "pig heaven" for the hard core workstation user.

HP-UX And OSF/Motif

The Model 834's operating system, HP-UX 7.0, has "Industry Standard" stamped all over it. HP-UX 7.0 is based on AT&T's UNIX System V Release 3.0, but it contains selected features from U.C. Berkeley Software Distribution 4.3 (BSD). Additionally, HP-UX conforms to the IEEE's POSIX 1003.1 standard and X/Open's Portability Guide Issue 2. In plain English, this means that software developed on the Model 834 can port to other standards-based operating systems.

Other features of HP-UX include support for the Department of Defense C2 Trusted System Requirements, discless operation via NFS, disc mirroring, MS-DOS emulation support (SoftPC), and industry networking standards. In the Lab, we have the HP 9000 Model 834 connected to our Ethernet network. With TCP/IP on the Lab's VAX 8800 and the Lab MicroVAX, I was able to copy files and log in to these non-HP systems. The standard Xterm program, provided with the X Window System, supplied the necessary VT100 terminal support for the DEC environment.

Although the long-time UNIX superuser will have little need for it, the novice will benefit from HP's menu-driven System Administration Manager (SAM). With SAM, common system administration duties are as easy as a click of the mouse. Although SAM is not an X Windows-based program, HP has encapsulated it with the SoftBench Encapsulator.

Finally, HP-UX for the HP 9000 Model 834 includes the X Window System and OSF/Motif. Unlike DEC and Sun Microsystems, who developed proprietary X-based GUIs (DECwindows and OpenLook), HP has chosen to use OSF/Motif. Although, as of this writing, the IEEE POSIX working group has not selected a standard graphical user interface, OSF/Motif is the logical choice. Version 1.1 of OSF/Motif includes many enhancements to the toolkit, and it builds on the HP 9000, DECstation and several other platforms. I believe OSF/Motif will become the industry standard GUI.

SoftBench On The Model 834

Virtually every UNIX workstation built today comes with an enhanced version of the X Window System. OSF/Motif, OpenLook and DECwindows are the three most popular X-based graphical user interfaces. Each of these GUIs enhances X with end-user tools and its own unique look and feel.

For all that the X-based GUIs bring to workstations, they have a serious shortcoming: They leave behind two decades of productive software. For years to come, software developers will convert popular software to X because this is the direction workstation users want to go. However, until the mass of UNIX software is converted or rewritten, the workstation user is stuck in between. Terminal emulation on the workstation is the only thing that links us to the traditional software tools.

HP has an interim solution to the GUI software problem. Using SoftBench, HP's integrated software development system, the workstation user can encapsulate standard UNIX utilities in a Motif-style interface. The Encapsulator, as HP calls it, is a component of SoftBench that uses a message server to link communications between the SoftBench visual interface and non-screen-oriented utilities. Communication between SoftBench, the message server, and the UNIX utilities is facilitated by a C-like language called EDL. The message server communicates with the UNIX utilities through standard input/output and standard error.

Using EDL, you describe a user interface consisting of standard widgets, such as pull down menus, buttons, accelerators, scroll bars and output workspace. User events, such as a button push, are linked to user-defined functions that send commands. Creating a menu and linking it with a function is as simple as the example in *Figure 1*. Several additional object and module calls are necessary to make an actual EDL encapsulation program.

HP's SoftBench is far more than just an encapsulator. It's a complete programmer's workbench. The message server described above is the hub of the workbench. All SoftBench tools, including an editor, program builder, debugger, static analyzer, tool manager and development manager interface with the message server. In a network environment, each of the tools can run on separate systems. For instance, a compiler server could be set up for several programmers to share.

If I had to launch a single complaint against the HP 9000 Model 834, it would be HP's persistence in using proprietary storage devices. Neither the disc drives nor the cartridge tape drive were standard. It's time for HP to get on the SCSI bandwagon so we, the customers, can take advantage of the commodity peripheral market.

In a sea of 14-mips, under $100,000 workstations, the HP 9000 stands out as a useful, long-term tool, not a discless, single-board wonder. It's a tool that embraces software standards, present and future. It's a tool we can use, because it has the capability to get the job done. Its superior performance and quality just make the job that much easier. ■

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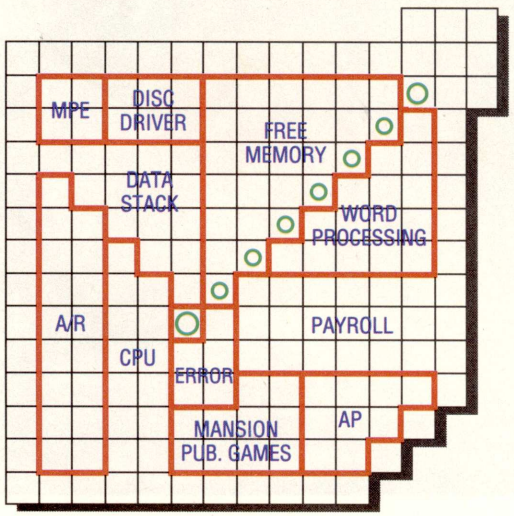
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PROBE/3000



Strategic Systems Takes You To The Heart Of Your HP 3000

PROBE/3000 from Strategic Systems Inc. (Seattle, WA) is a snapshot performance analysis tool for MPE V systems. It comes with a companion, TREND/3000, which graphically displays statistical use over time.

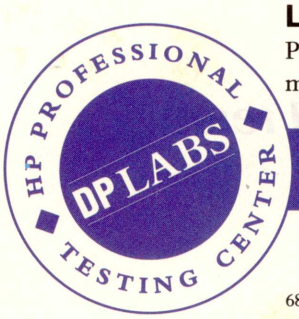
For anyone with an MPE XL machine, PROBE/3000 has a sibling, the PROBE/XL. Most of the comments contained in this review also apply to PROBE/XL, although there are some obvious differences. TREND/3000 operates using the log file data generated either by PROBE/3000 or PROBE/XL.

Look Into My CPU

PROBE/3000 is an excellent tool for measuring any resource or program on the HP 3000. I found myself sitting for hours watching resource utilization figures under different load mixes, and investigating the inner workings of specific programs as they were being used in a production environment. Okay, so sometimes I'm a bit of a wonk, but the program can be addicting.

PROBE also is an example of why it's important to HP 3000 customers that MPE V and MPE XL internals information be available, or open, to potential and existing third-party software developers.

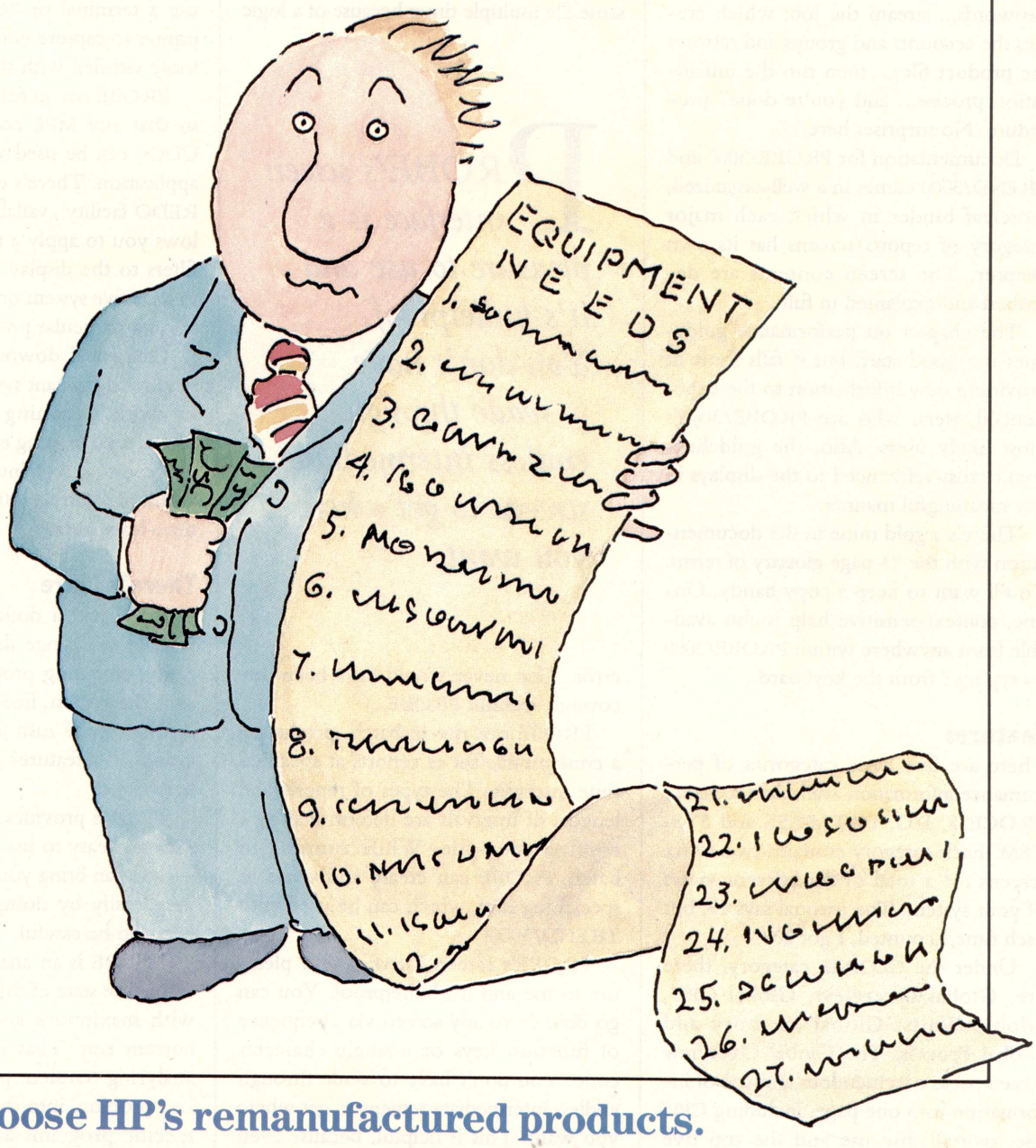
I like choices, and when it comes to performance tools, if your only source is HP, it's like having the fox guard the chicken coop. I'm more comfortable having at least the option of a good third-



John P. Burke

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party product either by itself or as a companion to HP products.

Documentation

PROBE/3000 follows the increasingly common "restore a job file... modify any passwords... stream the job, which creates the accounts and groups and restores the product files... then run the initialization process... and you're done" procedure. No surprises here.

Documentation for PROBE/3000 and TREND/3000 comes in a well-organized, looseleaf binder in which each major category of reports/screens has its own chapter. The screen contents are described and explained in full.

The chapter on performance guidelines is a good start, but it falls short of providing new information to the experienced users, who are PROBE/3000's most likely users. Also, the guidelines aren't cross-referenced to the displays in any meaningful manner.

There's a gold mine in the documentation with the 23-page glossary of terms. You'll want to keep a copy handy. Online, context-sensitive help is also available from anywhere within PROBE/3000 by typing ? from the keyboard.

Features

There are five basic categories of performance information available: GLOBAL, PROCESS, I/O, DATABASE and SYSTEM. Each category contains two to six screens for a total of 20 different views of your system. The manual says 19, but each time I counted, I got 20.

Under the GLOBAL category, there are: Global Overview, Global CPU, Global Waits, Global Memory and Global Process. The Global Overview screen packs a tremendous amount of information into one page, including CPU use, overall disc use and the top five CPU-using processes (a nice touch).

Under the PROCESS category, the PROCESS DETAIL screen lets you monitor any individual process. In addition to CPU use, LDEV, priority and queue, father and son processes, actual stack size and stack space distribution, PROBE shows you file equations, all open files (and IMAGE datasets) and stack markers.

PROBE helps you fine tune MAXDATA parameters or discover where a process is spending its time. In testing PROBE, I discovered that a frequently used program was opening the same file multiple times because of a logic error. That never would have been discovered without PROBE.

PROBE's screen interface is a pleasure to use and it's bulletproof. You don't have to wade through endless intermediate screens to get where you want.

PROBE can run in batch, producing a configurable set of reports at specified time intervals. The types of reports and lengths of intervals are determined by a configuration file. While running in batch, PROBE can create and write to special log files, which can be used with TREND/3000.

PROBE's screen interface is a pleasure to use and it's bulletproof. You can go directly to any screen via a sequence of function keys or a single character code. You don't have to wade through endless intermediate screens to get where you want. This is helpful, because even at 19.2K, the screens are so full of information that it can take an appreciable amount of time to paint even one.

If you're monitoring a process that terminates, PROBE sometimes loses its mind a little bit, splattering your screen with some of those funny little characters, whose purpose is a mystery. But then, after a cycle or two it seems to recover, so there's no real problem.

Strategic Systems thoughtfully provides a version of PSCREEN as part of PROBE, so you can get a printed copy of any screen. Do yourself a favor and use a terminal or PC with an attached printer to capture your screens. You'll be more satisfied with the results.

PROBE has an MPE command mode, so that any MPE command, including UDCs, can be used without leaving the application. There's even a 25-command REDO facility available. PROBE also allows you to apply a number of different filters to the display. This is very useful in an active system or if you want to zero in on a particular program or user.

One small downside is that PROBE requires significant system resources to do its work. Running on a Series 48 in batch, with logging enabled and producing reports at 30-minute intervals, PROBE required nearly 1000 CPU seconds in a nine-hour period.

There's More

I wish I had a dollar for every time I wanted to change the priority of an already executing program to better balance the system, free up resources or zap through some rush job. Does MPE provide such a feature? You're new around here right?

PROBE provides it, however and it's slick and easy to use. But be forewarned — you can bring your system to its knees very easily by doing something stupid here. So be careful.

PROBE is an analytical tool for capturing the state of things right now along with maximums since the start of the current run. That means it's great for analyzing transient problems or delving, i.e., probing, into the inner workings of specific programs and their impact on overall performance.

TREND/3000

Suppose instinct tells you that you need more memory, another GIC or a more powerful CPU. Try to loosen your organization's purse strings sometime with a statement like, "I can't prove it, but my

gut tells me we need another 4 MB of memory."

Your management career will be short if you don't learn that you need hard numbers, metrics, statistics, or better yet, graphs to prove your point. Enter TREND/3000, a program included with PROBE/3000 and PROBE/XL.

When PROBE/3000 is running in batch mode, you can have it create log records at periodic intervals that TREND/3000 can use later. TREND/3000 can produce several different graphical reports, which depict trends in, and distribution of, system use. The monitored resources include CPU use, system response, disk use and memory utilization. TREND/3000 supports a variety of printers and plotters. I found it a very useful addition and companion to PROBE.

PROBE isn't for the novice or faint of heart, but you don't have to be a wizard to achieve results. Useful information can be had on several different levels. The user interface is so well designed that it's surprisingly easy to navigate around even 20 screens. Although some screens are a little busy, I can't think of anything I would want to do without or change. PROBE/3000 would be an excellent addition to any system manager's toolbox.

PROBE/3000

SYSTEM REQUIREMENTS: HP 3000s MPE V. PROBE/XL is for MPE XL HP-PA machines. TREND/3000 runs on both MPE V and MPE XL machines.

PRICE: PROBE/3000 ranges from $2,500 - $6,500; PROBE/XL ranges from $5,000 - $9,995.

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PC TIPS

Miles B. Kehoe

Window Wisdom

Microsoft introduced Windows 3.0 in May, and luckily, much of the information I've presented about the tricks of Windows version 2.11 remains valid in this new release. Here, I'll finish discussing the major sections of the WIN.INI file, including the sections involving screen and printer fonts and application specific data.

Fonts

The last standard section of the WIN.INI file is the [fonts] section that controls both the basic printer character font as well as the on-screen fonts.

The [fonts] section from my Vectra is listed in *Figure 1*. I've taken the liberty to remove some of the fonts I never use, so yours may have a few additional lines.

The other lines your system includes were probably included by Windows at installation time and contain three or four other "Sets." Depending on the type of monitor you're using, you probably can remove a few unused fonts yourself.

Set 1, included in my [fonts] section in *Figure 1*, contains what Microsoft calls "stroke fonts" as opposed to raster graphic images. They can be scaled to any size and are used with any screen or hardcopy output device. You should be sure the three fonts in Set 1 remain on your system.

Set 2, which I've removed, contains the raster graphic fonts used for CGA monitor output. These fonts are designed for a 640 x 200 pixel resolution—that's much lower than the VGA I use. If you use a CGA monitor, such as the original HP RGB monitor or monochrome graphics display, these three fonts in Set 2 should remain in your system.

Set 3 is a raster font designed for 640 x 350 EGA displays and the Hercules monochrome monitor. This font is also used by some non-HP printers. If your system uses an EGA display, then Set 3 should be in your WIN.INI file.

Set 4 is also a raster font, but is intended for use with 60 dpi printers, such as Epson's, in landscape mode. HP marketed this printer years ago as the 82905A. You may need to include Set 4 if you have this type of dot-matrix printer.

Set 5 is a raster font intended for use with certain 120 dpi printers, such as the IBM Proprinter or the Epson printer in portrait mode. Again, include these fonts if your printer requires them.

Set 6, which I include in my WIN.INI file, is a raster font for use with 640 x 480 VGA monitors. If you use a VGA display, you should include this driver.

Some devices provided don't exactly fit one of these six sets of standard fonts, so Microsoft includes a provision to add fonts through the control program CONTROL.EXE. A valid font file has a file extension of .FON. If you find one on a distribution disc, you can simply install it. Note that these are, for the most part, screen fonts. The next section will be more appropriate for those who use HP printers.

FIGURE 1

```
[fonts]
Helv 8,10,12,14,18,24 (Set #6)=HELVE
Courier 8,10,12 (Set #6)=COURE
Tms Rmn 8,10,12,14,18,24 (Set #6)=TMSRE
Roman (Set #1)=ROMAN
Script (Set #1)=SCRIPT
Modern (Set #1)=MODERN
```

Sample [fonts] section of WIN.INI.

FIGURE 2

```
[HPPCL,LPT1]
prtresfac=0
prtindex=6
cartindex=23
prtcaps=-32640
paperind=1
```

Printer section of WIN.INI.

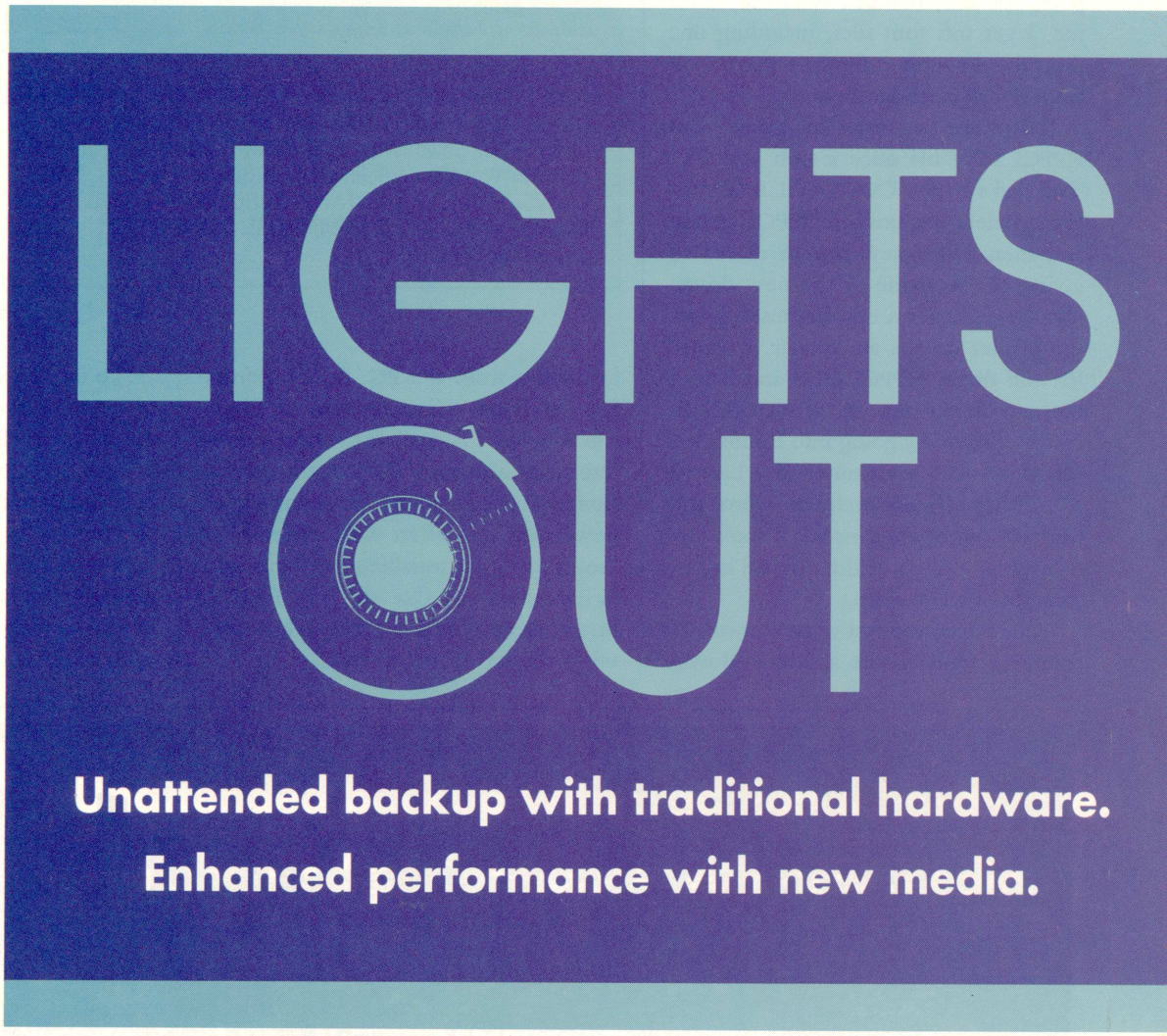
Device Specific Sections

You can change all the "standard" sections of the WIN.INI file either directly or through the CONTROL program. However, Microsoft allows additions to WIN.INI for specific printer drivers, as well as for any program that has specific information to be maintained within Windows.

If you have an HP LaserJet printer on your system, you probably have a section that looks like *Figure 2*. This section tells Windows that the file HPPCL.DRV is the driver program for your printer and that it's attached to port LPT1. When you change the printer connection in the CONTROL program, it changes the entries here.

The standard HPPCL.DRV includes the older members of the LaserJet family but not the LaserJet IIP or the new LaserJet III. You can get newer copies of this file from the HP Forum on Compuserve simply by downloading the file to your Vectra.

For example, I use a LaserJet IIP, which wasn't included in the list of printers in the original HPPCL.DRV file in Windows 2.11. By downloading the



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more recent HPPCL.DRV file from Compuserve, I get not only full IIP support, but also, bundled with the driver file, I get soft font files, including one that provides support for the HP Pro Collection font cartridge I use.

There are two ways to update your HPPCL.DRV file once it's on your PC. You can run the CONTROL.EXE program, delete the existing HPPCL printer and then add a new printer driver by giving the filename of the new driver. Or, there's a short cut. Because I know the printer drivers are similar, I named the old driver HPPCL.OLD and copied the new driver into the WINDOWS directory. Then, by going into Printer Set-Up, I changed the printer to a LaserJet IIP. Either of these methods is probably fine, although you'll notice I took care to make a backup of the original in case something went wrong.

A nice feature most of the newer HP printers include is the ability to download fonts from the PC. In the Printer Set-Up menu, Windows features a button labeled "Fonts" for sending font information to these devices. As I mentioned above, support for a variety of new cartridges often exists initially as "soft fonts." By installing soft fonts into Windows, I can "teach" the HPPCL driver about cartridges that didn't exist when the driver was written.

FIGURE 3

```
[Microsoft Word]
CONVNUM=6 CONV1="WordPerfect 5.0" F:\WINWORD\CONV-WP5.DLL ^.DOC
CONV2="MS Word" F:\WINWORD\CONV- WRD.DLL ^.doc
CONV3="Windows Write" F:\WINWORD\CONV- WRI.DLL ^.wri
CONV4="WordStar 4.0" F:\WINWORD\CONV- WS.DLL ^.DOC
CONV5="WordStar 3.45" F:\WINWORD\CONV- WS.DLL ^.DOC
CONV6="WordStar 3.3" F:\WINWORD\CONV- WS.DLL ^.DOC
Conversion=Yes
```

Word for Windows entry in WIN.INI.

To install a set of downloadable fonts, or to add a new cartridge to the driver, use the CONTROL.EXE program. In the Printer Set-Up section, highlight your printer and select "OK." This leads you to a Set-Up menu. Make sure you have highlighted the correct printer type and memory size; and scroll through the list of font cartridges to be sure the font you want to use isn't already there.



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If the font you want isn't present and you have a .PCM soft font file, you can install it by clicking on the "Fonts" button. This takes you to a menu displaying existing soft fonts in the left window. You're asked to insert a disc with the .PCM file in Drive A: or to enter the path for the soft font file you want to use.

Once you've selected the correct drive and directory, the right window shows you all soft fonts in the directory you specified. Highlight the one(s) you want to install and click the "Add" button. If this is your first soft font, you need to provide the name of a directory where Windows can store your soft fonts. I suggest you make this a subdirectory on the drive where your Windows program resides so you can remember which version of Windows uses the fonts.

When you've added all the soft fonts you want to use, return to the Set-Up menu. To enable the fonts, simply highlight their names in the fonts list. It's that easy.

Application Specific Entries

As I mentioned, some Windows applications use WIN.INI as a place to maintain information. Excel and Microsoft Word for Windows are two of many that do. The entry in WIN.INI for such a section is listed in *Figure 3*.

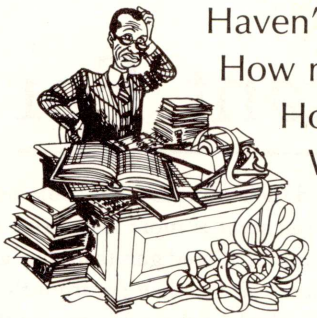
You can see that, like the printer device information, much of this information is specific. In this case, the information tells Word for Windows which file conversions are available on my system and the file types associated with the various other applications.

You may find many such entries in your WIN.INI, and the best advice I can give you is to leave these application-specific sections untouched. The application using the data expects a certain format and may not be very tolerant of changes to its section of WIN.INI.—*Miles B. Kehoe is an online support manager for Verity Inc., Mountain View, CA.*

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PROBLEMS PROBLEMS PROBLEMS

Who's Working on what Problem?



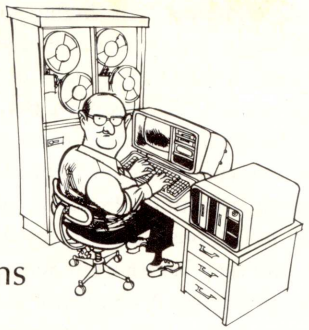
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NETWORKING

Gordon McLachlan

Consultant For Hire

Maybe you've thought about hiring a network consultant. Maybe you've done it already. Working successfully with a consultant requires some foreknowledge and preparation. A bad outing with a consultant starts as a pain in the neck and works its way down—to somewhere in the vicinity of your wallet.

Do you need a consultant? That's a good question. Maybe you should hire a consultant to find out. Just kidding.

Typically, consultants are most useful for helping you do things you don't do frequently, things like overhauling computer networks, choosing hardware and software for major projects or eyeballing new technologies.

A good consultant is thoroughly skilled and extensively experienced. Some consultants are highly specialized and others are systems generalists. The type of consultant you need depends on your project. A consultant may or may not be smarter and more experienced than everybody in your Information Systems organization. Probably, and hopefully not. Consultants are useful mostly because they have a fresh perspective on your problems. A consultant comes into your company with a different angle on the problems at hand and on the technology applied to them.

This fresh approach is really needed in systems organizations that are too inbred. Years of the same people looking at the same problems of the same users often mean more of the same old "solutions." A good consultant can give your outfit a reality check and point out alternatives that may have been eluding you.

Consultants also have the credibility granted them by the weight of their invoices and their expertise. For some reason, management is more responsive to the opinions of a hired gun than they are to the "free" advice they get from their own staff. Much of this is because of the perceived impartiality of the consultant.

Vendor biases, the "not-invented-here" syndrome, and the usual territoriality and political jargon are too often part-and-parcel of IS decision-making. If you don't believe me, put a Novell PC network manager, an IBM freak and a UNIX jockey in the same room and tell them to design a network. Give me a call after you clean up.

In too many companies, the biggest impediments to bringing good systems online are the turf wars that accompany the system selection process. A consultant who's doing his job (impartially) will try to ignore all that silliness and give you some straight answers.

Now, if you, or your management, have decided you need a consultant, you have to find one and hire him. What's the trick? First, you've got to decide upon the size of the consulting firm you want to employ.

Does the size of the firm matter? The answer to that is a definite maybe. It all depends on the size of the project. The consultants in big companies aren't any smarter than the guys in the little companies. Better fed, perhaps, but not any smarter. The big question is whether the firm can cover the whole job.

The most important thing on smaller projects is the consultants' qualifications, not the size of the firm or the glossy brochure. A small firm can cover quite nicely in the one-on-one and tag-team matches, but if you want to run a Battle Royal Texas Steel-Cage Death Match, you need extra bodies to toss into the ring.

A very large assignment—or one with a consulting budget comparable to an NBA player's salary—may require a large firm. Unless you raise Siamese fighting fish as a hobby, don't even try to manage more than one consulting firm on a single project. You don't have to use the biggest firm, just use one that's big enough.



Generally, the larger the firm, the higher the rates you'll pay. Smaller companies can be made to grovel for smaller amounts of cash because their overhead is typically lower.

If you plan to use your system vendor as a consultant, hang on to your wallet. Most vendors subscribe to the theory that it's uneconomical to bill a $35,000 "expert" for any less than $1,000 per day. They're also about as trustworthy as Joe Isuzu when it comes to recommending multivendor network solutions.

Is The Consultant Qualified?

Check resumes and interview any consultant who'll be working for you. Make

sure that their experience is relevant and extensive.

Depending on the assignment, your consultant will need a blend of technical, management and interpersonal skills that are hard to find. That's why you're hiring a consultant, remember? Make sure all the right pieces are there.

Fit the consultant to the job at hand. Sometimes you'll need very specific hardware and software experience, maybe even a wild-haired madman with a coding jones. At other times, you'll need a generalist to steer you through the land mines or somebody with nice clothes to help you justify a big project budget.

If you'll be hiring a project team from a consulting firm, don't just look at the qualifications of the lead consultant. You're hiring the whole team, and will pay the big bucks for everybody on it. Make sure you know exactly what every member of the team will be doing, and their skills and commitment to your project. Get what you pay for.

Beware of vendor consultants who have little or no experience with anything except what their employer sells. Think about it. If those solutions were all that hot, you wouldn't be needing a consultant in the first place, would you?

One thing consultants lack is an expiration date. You wouldn't buy a cheese that's past its prime. Why would you hire an out-of-date consultant? Consultants don't necessarily smell bad when they expire, but they still aren't good for you.

Today's networks are increasingly decentralized, LAN-based and standards-influenced. Most everything your consultant learned more than five years ago is useless. Network technologies have a half-life of about two years, so recent experience is key. Don't get me wrong. A consultant should've been around the block a few times, but don't get hung up on finding someone who helped install the first trans-Atlantic cable.

Before you can hire a consultant, you've got to find some. I wouldn't suggest using the yellow pages. Ask your peers and your hardware and software vendors for recommendations.

Another place to look are the big accounting firms. There may be a major bean-counting consortium already serving your company. Consultancy is the rage with them nowadays, and they provide you with a variety of specialists, many of whom actually know what they're doing.

When should you bring a consultant on-board? Preferably before your boss hires one. When you start work with a consultant, you may be eager for some quick answers. A good consultant, however, will first help you out by asking several more questions.

Don't be surprised if you're asked to cough up some dough for a "preliminary study" or some other euphemism for the consultant figuring out what you really want him to do. This arrangement is often necessary to scope out the project and protect both sides.

This may seem like a real pain, especially if you bring in a consultant after a project has run into trouble. Rather than immediately speeding up your effort, a consultant may want you to step through a good part of the process all over again.

Bringing in a consultant after the fact also can flush the morale of a project team right down the toilet. Bringing in a hired gun makes it look like the sheriff isn't doing a good enough job.

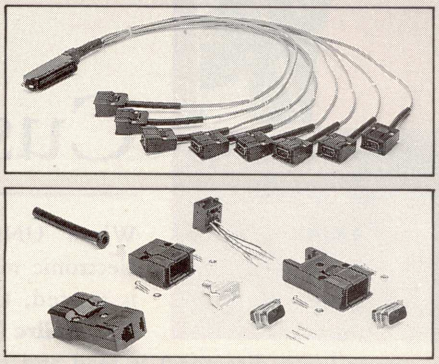
As always, teamwork is the key. By getting involved early, a consultant can be assimilated into your project team a whole lot easier.

Besides, if you need a consultant at all, you probably need him most in the earliest planning stages of your project. The sooner you bring the consultant in, the better your results will be.

Your job is to figure out that you need help before the system hits the fan. Maybe you really should hire that consultant to figure out if you need a consultant.—*Gordon McLachlan is an independent consultant based in Canton, MI.*

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UNIX

Andy Feibus

Custom Mail

When UNIX electronic mail is started, the file **.mailrc** (in your login directory) is read and the commands contained in the file are executed. These commands are the same as the commands you can execute while reading any e-mail messages you've received (i.e., *command mode commands*). These commands were discussed in my July 1990 UNIX column and are documented in Section C (or Section 1) of your *UNIX Reference Manual.*

The commands usually placed into the **.mailrc** file are those that affect your environment. The most important of these environmental commands is the **set** command. This command has two forms:

```
set name
set name=value
```

where **name** is a control *variable.* The specific form used by the **set** command is based on the control variable you are setting. To erase a variable, use the **unset** command.

More than 40 control variables can be set to tailor your **mail** environment. Some of these variables are listed in *Table 1.*

As an example, part of my **.mailrc** file is the following:

```
set crt=22 cmd=/usr/bin/more
set askcc hold page PAGER=/usr/bin/more
set prompt="MAIL>" quiet SHELL=/bin/csh
```

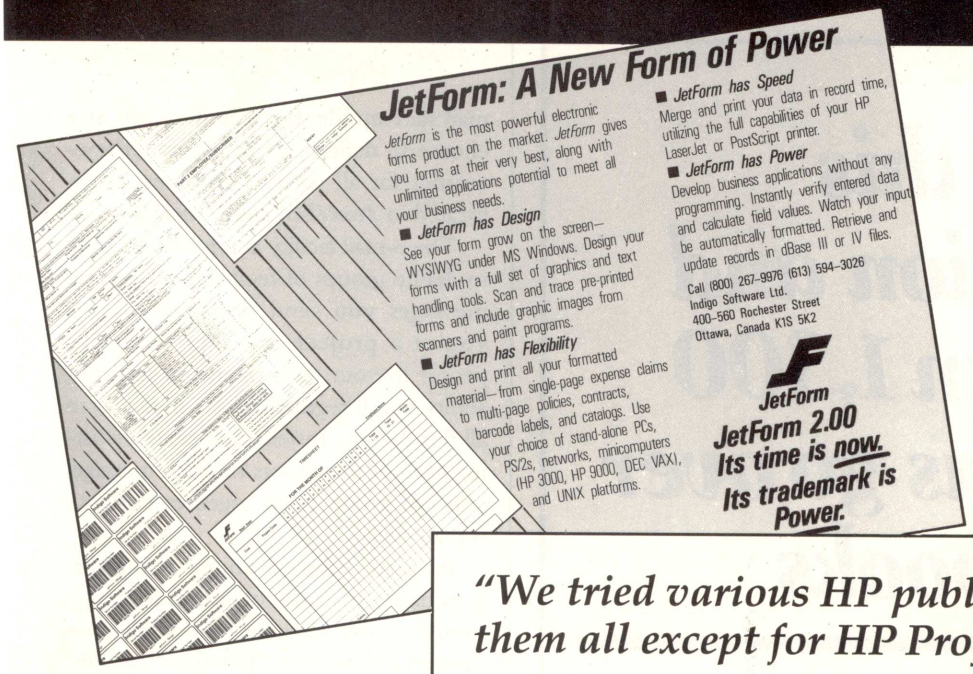
As you can see from this listing, more than one variable may be assigned for any single **set** command. If you want to see what variables are **set** for your mail environment, use the **set** command with no arguments.

If you're the administrator for the system, you may want to create a global

TABLE 1

askcc	When sending a message, ask for the carbon copy list after the message is entered. Default is **noaskcc**.
asksub	When sending a message, ask for the subject before the message is entered. Default is **noasksub**.
chron	Displays messages in chronological order (most-recently received message is last). The default is **nochron**.
cmd=command	Specify the default **command** for the pipe (or \|) command. By default, this variable is not **set**.
crt=number	Pipe messages containing more than **number** lines through the command specified by the **PAGER** variable (described below; usually, this variable contains the **more** command). By default **crt** is not **set**.
DEAD=name	The name of the file where interrupted messages are stored. Messages are interrupted either by the user pressing **BREAK**, entering the **~q** command while creating a message, or pressing the interrupt character (specified by the terminal's **stty** settings; usually **^C**). By default, this variable is **set** to **$HOME/dead.letter**.
escape=char	Don't like the tilde in the tilde commands? Change it using this variable. The change occurs after the current message has been sent (if you're presently entering a command). By default, this variable is **set** to **~**.
header	Display the header summary when entering mail. By default, this variable is **set**. To disable this feature, **unset** the variable or **set** the **noheader** variable.
hold	Causes any message that is read, but not deleted, to be kept in the mailbox (instead of being moved to the mbox file). By default, **nohold** is **set** instead.
keepsave	Once a message is saved, the message is automatically deleted. **Set**ting this variable causes the message to be kept until explicitly deleted. Default is **nokeepsave**.
metoo	Permits you to send messages to yourself. This variable is **set** by users who use the Reply command (which sends a response message to all users receiving a certain message). Default is **nometoo**.
page	Used by the **pipe** command to insert a form feed (**^L**) after each message sent through a filter (e.g., if you send more than one message to **lp** via the **pipe** command, each one begins on a new printer page).
PAGER=command	Use the specified shell **command** as a filter to paginate messages displayed using the print or type commands. By default, the command is **more**. This variable has no effect if the variable **crt** is not **set** to a value.
screen=number	Defines the number of headers that comprise a full screen. The **h +** and **h -** commands increment through the headers by this number. By default, this value is **unset** and 20 headers are displayed.
SHELL=command	If any command requesting a shell (e.g., **!** or **sh**) is executed, this variable defines the desired shell. By default, the value from your **SHELL** environmental variable is used.
VISUAL=command	Defines the editor used by the **~v** command. By default, this variable is **set** to **vi**.

There are more than 40 control variables that can be set to tailor your mail environment.



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mail start-up file. For example, you may choose to define certain general characteristics for all users. This global file is located in **/usr/lib/mail/mailrc**.

The e-mail facility also provides a way to define groups of recipients to receive messages you send. For example, if you're a project manager with five people in your department, in all probability you'll regularly route messages to all five people. Instead of repeatedly listing each of these users for each message, you can group them together using an e-mail *alias*.

An alias defines a unique string that is equated to a list of users. Messages routed to this alias are sent to all users defined for the alias. The users are substituted when the alias string is specified as a recipient for a message.

For example, suppose you have an alias "dept" that includes the following users: mary, john, mike, bill, dave. The command:

```
$ mail dept
```

is interpreted by the e-mail facility to mean:

```
$ mail mary john mike bill dave
```

You can declare aliases in your **.mailrc** file. Some sample aliases:

```
alias mat mathew
alias jett jam
alias everyone jam bart julie ell nina
```

The first two aliases provide an alternative address for a single user. The last provides a way to reference a list of users when sending a message by specifying a single word ("everyone").

Aliases also may be used when forwarding a message, creating a carbon copy list, or making the blind copy list for a message.

You should now have enough information to send and receive e-mail and to create for yourself a nice e-mail environment.—*Andy Feibus is an interplatform systems consultant based in Atlanta, GA.*

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RDBMS

Fabian Pascal

Inapplicable Values

Assume that salary and commission are mutually exclusive, i.e., a salaried employee can't earn a commission and vice versa. Therefore, the entry for each employee in your database should contain a value for salary or commission but not both. The missing value, whichever one it is, is not unknown, but rather, *inapplicable.*

Given these assumptions, what if you wanted to find the total compensation for each employee? A salaried employee's total compensation is his salary, and for an employee earning commissions, it's his commission. Note that if the salary or commission were *unknown*, the results would be different — total compensation would be unknown in all cases.

In practice, you need both types of missing values. For example, in *Figure 1* some of the missing salaries or commissions are unknown and some inapplicable. Employees in the E01 department are commissioned (no salary), those in E11 departments are salaried (no commission).

First, if you want the total compensation for each employee, a DBMS should be able to distinguish between the two types of missing values and provide the correct answer in each case. This means that 3VL (3 value logic) isn't sufficient, and you need 4VL support: A fact can be true (T), false (F), unknown (U) or inapplicable (I).

Second, you still have a problem. In the last row, the departmental assignment is unknown (DEPT# value is missing), so you don't know whether the salary is unknown and commission inapplicable (E11), or the other way around (E01). What should the DBMS do?

Here you actually need 5VL: true, false, unknown, inapplicable and *unknown whether unknown or inapplicable.* The problem is that by adding this fifth type of missing value, you need yet a sixth to distinguish it from the others (6VL), which requires a seventh (7VL), which requires... In other words, no finite logic.

Even without that, the situation is complicated because there are more types of missing values than unknown and inapplicable anyway. A value may not exist (e.g., SSN of employees who don't have one), may not be available, may be undefined (e.g., average payment where number of payments is 0), may be invalid (e.g., unprevented violation of an integrity rule), etc. And, unfortunately, not all these missing values can always be treated equally in database operations.

Thus, theory doesn't precisely say what kind of logic the DBMS should support to satisfy all needs. Anywhere we stop (3VL, 4VL, 5VL, etc.) would not be sufficient.

EMP#	ENAME	DEPT#	HIRED	SALARY	COMM
270	Schwartz	E01	6/23/80	iiiii	19900
310	Setright	E11	9/12/64	24180	iiiii
280	Dennis	E11	10/ 1/72	uuuuu	iiiii
330	Gardner	uuu	4/16/79	?????	?????

Figure 1: Unknown (u) and inapplicable (i) values.

EMP#	ENAME	DEPT#	HIRED	SALARY
100	Spenser	E21	6/19/80	26150
160	Pianka	D11	10/11/77	22250
310	Setright	E11	9/12/64	24180
250	Smith	D21	10/30/69	19180

SAL_EMPL Table

EMP#	ENAME	DEPT#	HIRED	COMM
150	Adamson	D11	2/12/72	25280
260	Johnson	D21	9/11/75	17250

COMM_EMPL Table

Figure 2: Two-table design for EMPLOYEES.

EMP#	ENAME	DEPT#	HIRED	SALARY	COMM
100	Spenser	E21	6/19/80	26150	
150	Adamson	D11	2/12/72		25280
160	Pianka	D11	10/11/77	22250	
310	Setright	E11	9/12/64	24180	
250	Smith	D21	10/30/69	19180	
260	Johnson	D21	9/11/75		17250

EMPLOYEES Table

Figure 3: One-table design for EMPLOYEES.

A Systematic Solution?

Relational databases rely on a 2VL-based theory (perfect information). And research has not as yet provided a *general* solution to missing data. Given the nature of the problem, however, it isn't clear that a solution *can* be found. Even if it could be, it would take a long time to develop, and it might prove very difficult for vendors to implement and uncomfortable for users. So what should be done now?

Clearly, ignoring the problem, as traditional database products do, isn't acceptable. But, given the fundamental problems involved, experts disagree on what is desirable. E.F. Codd, the inventor of the relational model, thinks that 4VL support (T/F/U/I) is, for now, sufficient. His position is expressed in the Systematic Treatment of Missing Information Rule (No. 3).

- *No value*, such as:

■ empty character strings

■ strings of blank characters
■ 0, or any other numbers

should be used to represent the fact that values are missing—for *at least two distinct* reasons:

- *unknown data*
- *inapplicable value.*

Such facts must

- be supported in *operations*
- at the *logical* level
- in a *systematic* way
- *independent* of data type.

Codd has extended the relational model to allow for 4VL support (e.g., adding MAYBE versions of the relational operations).

Full support of relational features is crucial for design flexibility.

Other experts consider it better to avoid support of >2V logic until a general solution is found. The concern is that partial support of what is a very complicated issue will cause vendors and users difficulties more damaging than those presented by avoiding such logic altogether. And in fact, SQL proves that a more cautious position is necessary. SQL DBMS's support one type of missing values, NULL, which is supposed to represent *any* type of missing data. They suffer from severe problems, perhaps unknown to users.

Date proposes centrally defined, *disciplined default values*. Users would still choose certain values to represent missing data, but there would have to be a way to declare these values to the DBMS, which would store them in the system catalog and be aware that they needed to be treated differently in queries and applications. Users could possibly use features such as stored procedures or triggers to instruct the DBMS how to treat default values in all pertinent applications. This isn't much different than integrity and security rules: You would simply have "missing information rules" enforced by the DBMS. This, of course, avoids the traditional problem of leaving of this task completely to users in applications.

Practical Advice

Given the fundamental problems of missing information and ad-hoc, improper support by database products, you should handle missing data with extreme care.

First, avoid missing values as much as you can. Columns and tables should be designed to disallow missing values. For example, define columns with NOT NULL, and prefer the two-table design for EMPLOYEES (as in *Figure 2*) to the one-table design in *Figure 3*.

Note that full support of relational features is crucial for design flexibility. For example, if the union view of the two tables can't be created and updated (which is true of all SQL products today), the two-table design creates problems for applications that need the data on all employees.

Second, prefer DBMSs that support default values to those that don't. But be careful because the SQL standard and the commercial implementations that recognize defaults allow users to define them, but some stop there. There is no explicit support for their treatment in applications, although some products allow you to use stored procedures on your own to achieve the objective.

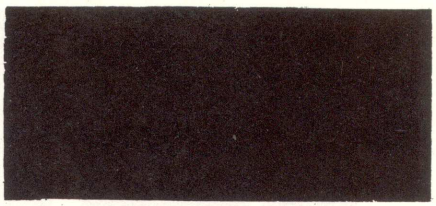
Third, if you must specify exceptions in applications, modularize and document them well.

Fourth, use SQL NULLS with extreme care. Because SQL DBMS's generate NULLS internally, you may not be able to avoid them completely. Always make sure that you understand how the system's treatment of NULLS affects what you're doing and the results you get, so that you can interpret the latter correctly.

Ignoring this advice means problems: What you don't know can, where missing information is concerned, hurt you.

—Fabian Pascal is president of micropaSQaL, Washington DC.

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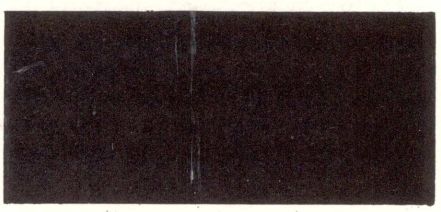
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Contact Perwill 5053 LaMart Dr., Suite 101, Riverside, Ca 92507; (714) 683-7920.

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Series 4X And 5X, Buy And Try Introduced For HP 3000s

HP has announced that between now and October 31, 1990 upgrade programs are being offered to give customers financial savings along with the additional performance, functionality and cost-of-ownership benefits they will see with a PA-RISC system.

The programs are the HP 3000 Series 4X and Series 5X Upgrade program that reduces the cost of upgrading to a Model 900 system and also gives customers a moneyback performance improvement guarantee. The other program is the HP 3000 "Buy and Try" program that gives HP Model 900 users a risk-free field-upgrade path to a higher performing PA-RISC system. Customers can try the field upgrade for 60 days and if not fully satisfied, return it for a full credit.

Dakota Research Develops DakotaRAM-Extender

Dakota Research Corp. has developed the DakotaRAM-EXTENDER memory board for DOS-based PCs built on XT or AT (ISA bus) standards. DOS memory is automatically increased by putting up to 256K more memory into unused space in the 1 MB DOS range. Some XT compatibles can go as high as 1008K, some to 960K.

In AT compatibles, memory not used by DOS can be placed anywhere in the 16 MB space. It can provide the 64K memory beginning at 1024K that is used by some DOS programs.

The additional DOS memory appears as standard memory blocks so it can be used transparently by programs that use multiple memory blocks. The DakotaRAM-Extender is compatible with most expansion boards including network cards, emulator cards, EMS boards (move device drivers without buying an EMS 4.0 board). Price is $199.
Contact Dakota Research Corp., P.O. Box 40, Rapid City, SD 57709; (800) 658-4500.

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Graphicus Updates HP-UX 9000 Software

Graphicus Inc. has released new versions of its software running on HP 9000-UX 300 and 800 Series computers. The enhancements and changes were made in response to the release of 7.0 of the HP operating system.

The company's graphical and statistical software solutions, GRAFIT, DRAWIT and STATIS, now support a network environment. With a Graphicus network license, the software can be run on any computer in the network, thus distributing the processing among X terminals or other computers in the network.

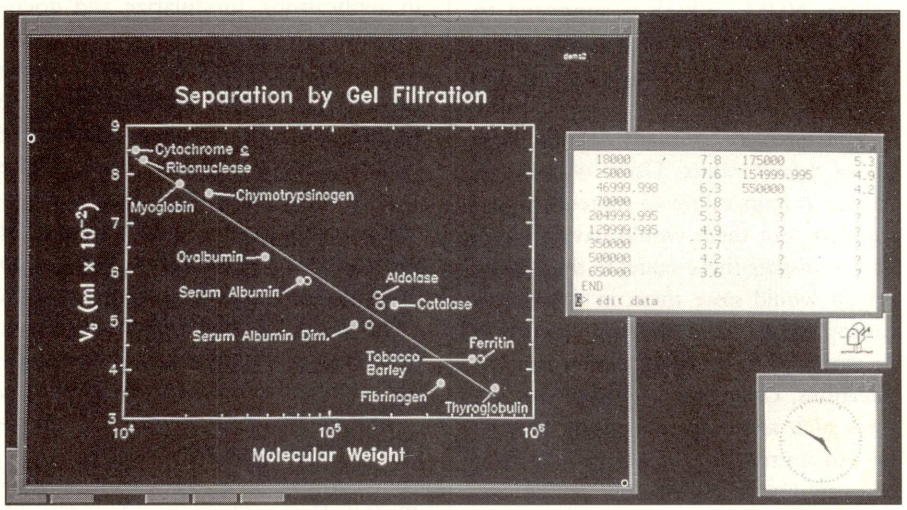
Additional enhancements and changes were made to GRAFIT 4.7, DRAWIT 2.7 and STATIT 2.7 for this release, most notably with X Windows support wherein you'll experience more simplified X Windows use.
Contact Graphicus Inc., 150 Lake St., Ste. 206, Kirkland, WA 98033; (206) 828-4691.

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Network Research Corp. Ships API For HP Basic Workstation

Network Research Corp. has released an API (Application Program Interface) for HP Basic workstations as part of its FUSION Network Software. In the process control, instrumentation and engineering environments where the HP Basic workstations are commonly used as unattended data collection devices, FUSION's API allows these systems to automatically transfer files to other systems on a TCP/IP network.

With FUSION's API, Basic programmers



Graphicus Inc.'s graphical and statistical software solutions now support a network environment.

can write their own native routines to call TCP/IP's file transfer protocol (FTP). The API automatically translates the subroutines into the appropriate FTP commands that the user would ordinarily have to input. Users on the network can transfer files to and from a centralized database or between individual workstations using familiar Basic commands. The network operations are completely transparent to the Basic program and to the user.

The price of FUSION Network Software for HP Basic, including the API, is $1,495 per machine. It also is available without the API at $995 per machine. Site licensing is available.

Contact Network Research Corp., 2380 N. Rose Ave., Oxnard, CA 93030; (805) 485-2700.

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FutureSource Announces Technical Analysis Software

FutureSource has released FutureSource Technical 3.1, compatible with the HP-UX platform. FutureSource Technical 3.1 offers trading houses increased networking capabilities, reliability of input and the ability to link with other systems. Traders can run multiple technical studies, track the news, watch quotes and utilize their own in-house applications simultaneously to maximize their trading profits.

Contact FutureSource, 955 Parkview Blvd., Lombard, IL 60148; (708) 620-8444.

Circle 370 on reader card

Oregon Software Releases C++ V2.0

Oregon Software Inc. has released version 2.0 of its C++ development system. It includes a v2.0 true compiler, source-level debugger and C/C++ libraries.

Oregon C++ v2.0 is designed specifically to be fully compatible with AT&T's version 2.0, including multiple inheritance. Oregon C++ is a true C++ compiler allowing the user to compile code directly from C++ to object code without an intermediate translation to C.

Oregon C++ is shipped with a source-level debugger that allows you to debug code in C++, eliminating the problems associated with name mangling, etc. The development system libraries include a complete ANSI C library and a library compatible with the AT&T stream I/O library for C++.

Contact Oregon Software, 6915 S. W. Macadam Ave., Ste. 200, Portland, OR 97219-2397; (503) 245-2202.

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DataNOW! Joins 16 Image Data Sets

CosmoSoft has upgraded DataNOW! to support joins from multiple data sets. DataNOW! uses a high-speed serial access technique to generate reports and file extracts from Image databases. The latest version allows users to join up to 16 data sets from as many as six databases.

DataNOW! allows you to quickly locate specific records in data sets. In a "Find Matching" benchmark run on a Series 70, DataNOW! read 106,211 entries from a detail set in 22 seconds.

Prices for a single CPU license start at $1,195.

Contact CosmoSoft, 2425 Susitna Dr., Anchorage, AK, 99517; (800) 666-9192 or (907) 243-7279.

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Q4 Instruments Releases Data Shuttle 8400

Q4 Instruments has released the Data Shuttle 8400 interface device for sharing computer printers and other peripherals in normal work areas. It also is suitable where high-speed communication is required as well as the CAD and desktop publishing environment.

Data Shuttle employs the Motorola 68000 microprocessor and high-performance serial communication controllers. This combination allows for a minimum throughput of 35,000 cps. Data Shuttle 8400 has eight fully bidirectional serial ports and four parallel ports that can be configured as either inputs or outputs allowing for any port to any port communication. Data Shuttle supports daisy chaining, file transfers and can be expanded to 8 MB RAM. Price for Data Shuttle 8400 is $899.

Contact Q4 Instruments Inc., 1100 Invicta Dr., Unit #7, Oakville, ON L6H 2K9, Canada; (416) 842-0200.

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Oracle Ships Professional ORACLE V5.1C

Oracle Corp. has shipped version 5.1C of Professional ORACLE Tools and Database for MS-DOS. The new version offers a menu-driven command shell interface, added support for third-party memory managers and support for Microsoft Windows 286.

Professional ORACLE Tools and Database allows you to develop portable applications that run on PCs, minis and mainframes, as well as in client/server configurations. The new Client Manager is a menu-driven command shell that provides an integrated environment for accessing Professional ORACLE.

Professional ORACLE Tools and Database Version 5.1C requires MS-DOS 3.0 or higher, an IBM PC/AT or 100 percent compatible, an IBM PS/2 or 100 percent compatible, or a COMPAQ DeskPro or 100 percent compatible, with a minimum of 640K RAM, 896 extended memory (2.5 MB recommended) and a hard disc. Price is $1,299.

Contact Oracle Corp., 20 Davis Dr., Belmont, CA 94002; (415) 598-8000.

Circle 385 on reader card

Infotek Offers First 32 MB Memory Module For 9000/345

Infotek Systems is the first to offer a 32 MB memory module, EM345+32, for the HP 9000 Series 345 computer.

The new EM345+32, a 32 MB pair of memory modules, EM345+8, an 8 MB pair of memory modules, and EM345+4, a 4 MB pair of memory modules, are all currently

available. These modules are ECC (Error Checking and Correcting) and are fully compatible with HP's RAM.

As with Infotek's EM375 series, the EM345+32 is the only memory module offered for the HP 345 that uses 4 megabit chips with ECC logic.

Contact Infotek Systems, 1045 S. East St., Anaheim, CA 92805; (714) 956-9300; (800) 227-0218; in CA, (800) 523-1682.

Circle 384 on reader card

Chestnut Data Releases CDS/SCAN For HP 3000

Chestnut Data Systems has announced a new release of CDS/SCAN, an online report display system, designed specifically for HP 3000 computer systems.

CDS/SCAN now provides several new display options, including "scrolling" and "mapping" of report pages into 80- or 132-column imaging arrangements. Supplementing the existing page and key access is a new "string" search facility. Also, automatic purging and archiving rules can be established based on report age or generation number. All Chestnut Data Systems' software runs on both MPE V and MPE XL operating systems. CDS/SCAN prices begin at $2,500 and include six months of free maintenance.

Contact Chestnut Data Systems, Park Towne Place, Ste. 505, 2200 Benjamin Franklin Pkwy., Philadelphia, PA 19130; (215) 557-6607.

Circle 382 on reader card

OCS/LIBRARIAN Supports Document Change Control

Operations Control Systems (OCS) has announced an enhancement to its LIBRARIAN product for HP 3000 computer systems that now provides automated support for Document Change Control.

LIBRARIAN gives users access to all predefined and approved documentation specifications while automatically ensuring the integrity of the document library. Once a master library of approved documentation files is defined, users can access master library files online for procedure verification or modification. The system also informs you of pending modifications to official files.

LIBRARIAN helps assure that only approved and current procedures are used for everything from manufacturing to laboratory testing and quality assurance testing. LIBRARIAN's Document Control System provides "working copies" of master documents for revision, supervisory review and approval steps, a master document update facility and "read only" access to users.

Contact OCS, 560 San Antonio Rd., Palo Alto, CA 94306; (415) 493-4122.

Circle 388 on reader card

Helios Provides Memory For Apollo Workstations

Helios Systems has introduced the MAA-4 and MAA-8 series memory boards for the Apollo DN3010A, 3500, 3550, 4000 and 4500 workstations.

The boards provide additional memory in increments of 4 MB (MAA-4 or 8 MB (MAA-8). They're 100 percent Apollo compatible and are available immediately.

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Each system contains four 80-pin bus-to-board interface slots for memory expansion. All transfers are performed by the system processor that uses a 32-bit word width with four additional bits for parity error checking. Both new boards are populated with 100-ns fast page-mode DRAMs and can be mixed and matched depending on the needs of the system.

Contact Helios Systems Inc., 1996 Lundy Ave., San Jose, CA 95131 (408) 432-0292.

Circle 381 on reader card

XL Products To Work With HP's AIF

Carolian Systems International Inc. has released versions of Sysview/XL and Sysplan/XL that work with HP's Architected Interface Facility (AIF) for the XL's measurement interface (MI). The AIF for the measurement interface allows third-party vendors like Carolian to access system performance information — information essential to the accurate reporting of system performance.

Sysview/XL, Carolian's interactive, online performance monitoring tool is very similar to its MPE V counterpart, but also has some new features including a new user interface that graphically displays system performance information, extensive online, context-sensitive help and a new modular design that further reduces system overhead consumed by the program.

An optional feature called Sysgraph is available with both Sysview/V and Sysview/XL. It lets you create graphs based on data collected in Sysview log files. These graphs can be displayed on a terminal, or sent to a printer or plotter. The graphs can be in line, bar and pie graph forms and can display performance information by hour, day or week.

Contact Carolian Systems International Inc., 3397 American Dr., #5, Mississauga, ON L4V 1T8, Canada; (800) 263-8787.

Circle 378 on reader card

Windows 3.0 Users Gain Access To HP Color Printers

HP has announced a software driver that allows Microsoft Windows 3.0 users to print with the HP PaintJet and PaintJet XL color-graphics printers.

Microsoft Corp. announced that the driver will be shipped with Windows 3.0. HP also introduced an improved version of the HP PaintJet printer driver for Windows 2.1 that includes support for the HP PaintJet XL printer.

With the new Windows 3.0 and 2.1 drivers, users can print documents up to five times faster than was possible with the original driver for Windows 2.1. The new drivers give users access to the advanced features of the HP PaintJet XL, including faster print speeds, more choices of media and presentation mode.

CCWORD Combines Text With Graphics

Interactive Computer Technology has announced the release of CCWORD Revision 3.1 for HP 1000 and HP 9000 computer systems.

CCWORD is a Structured Technical Documenting package that provides a full-function infinite-screen word processor and the ability to combine text with graphics. It works with ordinary HP terminals and does not require PCs.

Revision 3.1 includes several new features, including Robots (self-recording macros) for repetitive operations, Undelete for both the Delete Line and the Clear Line Keys, 16 new cursor-position and document-control "quick" commands and X Windows (and HP Windows) and bitmapped screens on HP-UX computers.

Contact ICT, 2069 Lake Elmo Ave. N., Lake Elmo, MN 55042; (612) 770-3728.

Circle 377 on reader card

HP Adds Swept-Sine Software To PC-Based Analyzers

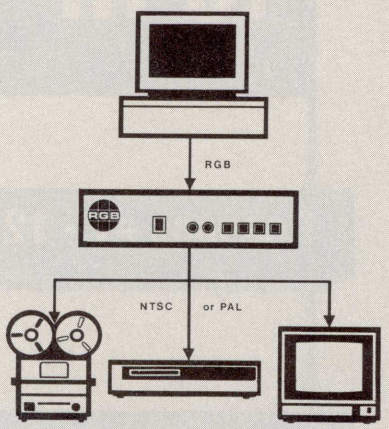
HP has introduced hardware and software options for its HP 3566A and HP 3567A PC-based spectrum/network analyzers.

New software adds swept-sine measurement capability, and a programmable digital-to-analog converter (DAC) module provides chirp waveform stimulus, arbitrary waveform and record/playback functions to the analyzers. In addition to these new options, HP revised the standard software to include an enhanced documentation feature.

The swept-sine measurement technique can increase measurements-dynamic range by adjusting source levels and input ranges for each measured frequency point.

Based on the HP 3565S modular-measurement hardware, the eight-channel, 12.8 kHz HP 3566A and the two-channel, 102.4 kHz HP 3567A offer built-in time and frequency-domain measurements that can be expanded to 16 simultaneous data-acquisition

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input channels. The HP 35637A swept-sine software is priced at $500. The DAC module starts at $4,500.

HP Introduces LIF Utilities For PC

HP now offers a set of logical-interchange-format (LIF) utilities for the PC. The new utilities package offers file interchange between LIF media and the MS-DOS format. Included in this MS-DOS application program are LIF file-handling tools for the PC environment.

The LIF utilities package for the PC, HP E2080A, is a menu-driven program that provides access to LIF discs while running on the PC. The program offers the following eight functions, which are available from the main menu: LIF to DOS copy, DOS to LIF copy, LIF catalog, LIF delete file, zero LIF disc, LIF disc stat, LIF hexdump (with edit capability), and LIF initialize. The new program also offers batch-mode operation from the command line.

All functions can access LIF-flexible discs either in PC disc drives (3 1/2- or 5 1/4-inch) or in external HP-IB disc drives (3 1/2-inch only).

The LIF utilities package is priced at $495.

QMS Expands Standard Features

QMS Inc. has announced that the QMS ColorScript 100 Model 10 printer will be enhanced to include several new, value-added features, with no increase in the printer's $9,995 U.S. list price.

The Model 10 now ships in the U.S. with 8 MB RAM standard, "out of the box" legal-size paper support and a larger standard printable region, increased duty cycle, added HP-GL emulation and spooling capabilities.

The addition of legal-size output support increases the printer's standard printable region to 8.1 inches X 12 inches, and the additional virtual memory and font caching capability increase the printer's throughput for faster first-time prints. For optimum memory management, the printer's already-standard SCSI port allows external hard drives to be attached for downloading additional typefaces, logos or overlays.

Contact QMS Inc., One Magnum Pass, P.O. Box 81250, Mobile, AL 36689-1250; (205) 633-4300.

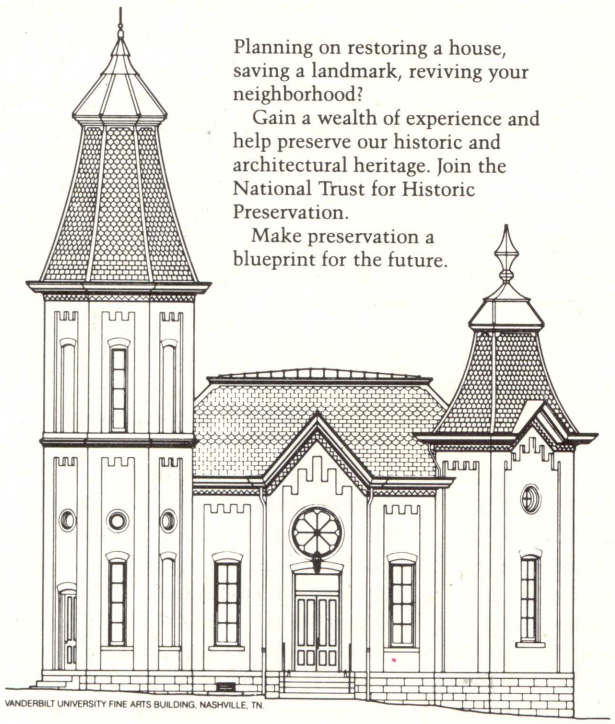
Circle 376 on reader card

Mitek Announces OpenConnect/IP Router

Mitek OpenConnect Systems has announced the release of its OpenConnect/IP Router software, which allows you to route and transfer data from one TCP/IP network, over an SNA backbone, to another TCP/IP environment. This eliminates the need for additional circuits, wiring, extra routers and the high cost associated with each.

OpenConnect/IP Router takes a raw IP datagram and "envelopes" an SNA frame around it, using the IBM LU6.2 protocol. The SNA packet is transported over the SNA network to another OpenConnect/IP Router

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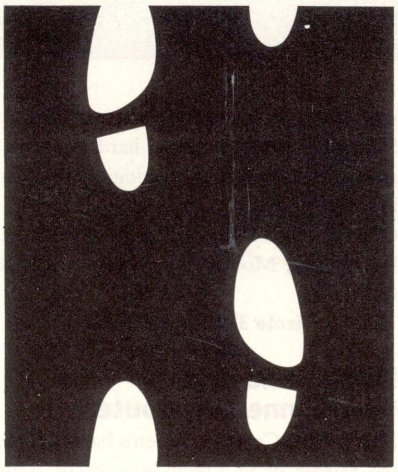
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module in an OpenConnect Server, which "un-wraps" the IP datagram and retransmits it over the target TCP/IP network.

The software modules that perform the enveloping and un-wrapping are termed OpenConnect/IP Router modules. A second kind of module also is available. It's the OpenConnect/SNAlink that routes to and from the IBM-provided TCP/IP protocol stack for IBM mainframes. This provides IP Router access to TCP/IP networks connected with an IBM 8232 or Ethernet adaptor to an IBM mainframe running MVS or VM, to TCP/IP applications of that host.

Contact Mitek OpenConnect Systems, 2033 Chennault Dr., Carrollton, TX 75006; (214) 490-4090.

Circle 375 on reader card

PlotMI Prepares ME10/30 MI For Plotting On HP 9000s

DAAI announced a UNIX utility program for HP 9000 Series 300 workstations that prepares ME10 and ME30 Model Interface (MI) files for plotting on HPGL-compatible output devices without having to load ME10 or ME30. This off-line plotting program reduces overall plot creation time and can run "in the background," freeing ME10 or ME30 for more productive interactive design uses. PlotMI supports all drawing features provided by ME10 software (V2.0-3.1x), with advanced control over drawing content and page layout. PlotMI also is compatible with MI files produced with ME30 (V1.0-2.1x) that adhere to the ME10 MI format specification.

PlotMI is easy to install, is memory efficient and can plot MI files as fast as ME10 itself. PlotMI requires HP-UX v6.5 or later. PlotMI is licensed on a per-site basis. The first copy at a site costs $3,500 and subsequent copies cost $1,500 each.

Contact DAAI, 668 Front St., Teaneck, NJ 07666; (201) 836-5508.

Circle 374 on reader card

ParcPlace Systems Announces Objectworks For Smalltalk-80

ParcPlace Systems has announced the availability of its Objectworks for Smalltalk-80 object-oriented programming system on HP's Apollo Series workstations. The product allows Apollo Series 2500, 3500 and 4500 professional programmers to run Objectworks for Smalltalk-80 under the X-Window System and tailor applications quickly and easily.

Programmers can build applications and move application binaries from one system to another without any code recompilation, saving time and costs.

Objectworks for Smalltalk-80 is priced at $595 for MS-DOS and Macintosh platforms and $3,495 for UNIX platforms; volume runtime agreements are available, along with full technical support services that include a customer hotline, upgrades to new software releases, an electronic bulletin board and regular newsletters. In-house and on-site training courses covering introductory through advanced level object-oriented methodology and programming are also available.

Contact ParcPlace Systems, 1550 Plymouth St. Mountain View, CA 94043; (415) 691-6728.

Circle 372 on reader card

HI-COMP Releases HP-UX Version Of HIBACK

HI-COMP has begun shipment of its high-speed network STORE/RESTORE facility designed for the HP 9000 Series of computers under HP-UX.

HIBACK/UX is faster than both Backup and TAR on HP-UX systems and offers the same easy-to-use interface and tape format as HI-COMP's HP 3000 versions, making full data compatibility and interchange possible between all systems.

HIBACK/UX performs optional high-density data compressing of your system's files and supplies capabilities for high-speed network STORE/RESTORE utilizing NET-IPC, unattended backup to disc, DDS-format tape drives, and rewritable optical disc. It also supports backup to tape and cartridge devices.

Contact HI-COMP America Inc., 588 Broadway, Ste. 810, New York, NY 10012; (800) 323-8863.

Circle 369 on reader card

Kelly Offers Memory Boards For LaserJet Printers

Kelly Computer systems has introduced a new line of memory upgrade boards for the HP LaserJet III and LaserJet IIP printers.

The PowerPrint 770 series memory boards are fully compatible with both the HP LaserJet II and IIP printers and are available for immediate delivery in 1, 2, 3 or 4 MB configurations. Each of the smaller memory configurations is expandable to 4 MB with

the addition of DRAM (44256 @100 ns). Contact Kelly Computer Systems, 1101 San Antonio Rd., Mountain View, CA 94043; (415) 960-3474.

Circle 368 on reader card

IEM Enables 3000 To Interface HP Library System

IEM Inc. has released an interface box, HS-6050, that allows HP Classic users with MPE V to use the HP C1700A and C1710A Rewritable Optical Disc Library Systems (jukeboxes).

HS-6050 installs as three normal disc drives at three separate HP-IB addresses. Two will be the actual magneto-optical disc drives that are part of the library system. Normal MPE disc facilities will function with these drives, including private volumes, serial discs and foreign discs. The HP STORE/RESTORE utilities and third-party backup utilities will be able to access these drives in the library system for backup and archive operations.

The third "disc drive" is the controller used for sending commands to the library system. This appears and mounts as a foreign disc to the HP 3000. No additional drivers are required on the HP 3000.

Contact IEM Inc., P.O. Box 8915, Fort Collins, CO 80525; (303) 223-6071.

Circle 364 on reader card

Discoversoft Ships Version 2 Of TreeSaver

Discoversoft Inc. has announced Version 2 of TreeSaver, a memory-resident software utility for HP LaserJet printers. TreeSaver allows existing DOS software to print two or four pages on one sheet of paper, thereby saving paper, toner, copying, postage, FAX and storage costs.

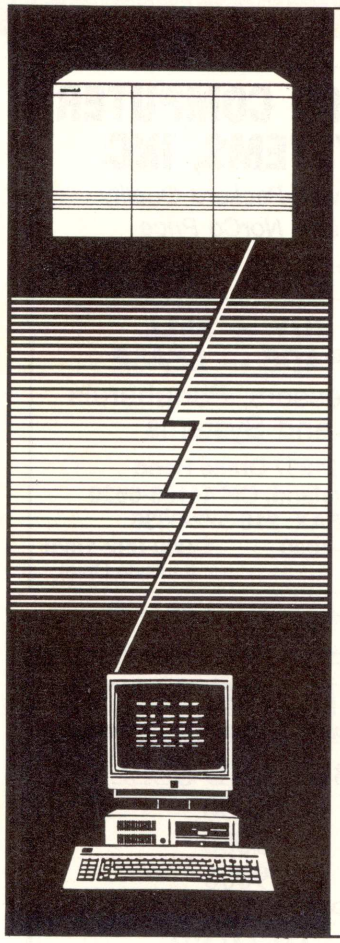
TreeSaver "photo-reduces" full size pages so that you can print "shrink-to-fit" reports for personal organizers. TreeSaver "speeds-up" laser throughput by reducing page counts and optimizing LaserJet printer commands.

TreeSaver works by intercepting print data from an application and reformatting it according to one of several available modes. The mode is selected with a user-definable hot-key from within any program.

TreeSaver runs on IBM PCs and compatibles and sells for $89.95.

Contact Discoversoft Inc., 1516 Oak St., Alameda, CA 94501; (415) 769-2902.

Circle 363 on reader card



M.B. Foster Announces HPPCPOLL

HPPCPOLL, developed by M.B. Foster Associates, allows Reflection commands to be executed on a PC from the host. The PC can be directly connected or connected over a phone line. For example, the extensive power of Reflection command language can be used to upload and download files or check for the presence or absence of files.

Several customers are using HPPCPOLL to deliver files to local or remote PCs during the nightly batch processing run. These files include pricing tables, inventory files, and order information. Even output from a DataExpress procedure, creating a Lotus, Dbase, or WordPerfect merge file, can be downloaded to the PC. HPPCPOLL can now be part of your nightly processing as long as the PC is left on and Reflection is running.

The audit trail built into HPPCPOLL includes the complete logging of errors and retries that occur during the execution of the HPPCPOLL command file scripts.

This product requires Reflection 3.0 or later and version 5.22 of PCLINK or later. Any modem used must understand the Hayes-compatible AT command set.

HPPCPOLL version 3.0, scheduled for release this summer, is menu-driven. This version lets you define script files, users' PCs, connections, ports, or phone numbers by filling in the blanks in the menu. A complete inventory of the PCs to poll and the script files to run when polling can be displayed at any time.

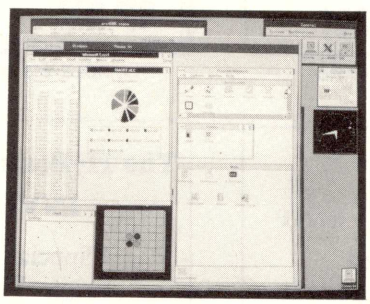
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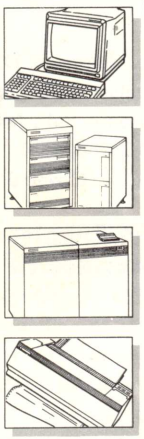
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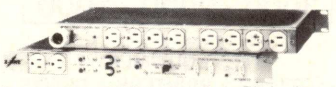
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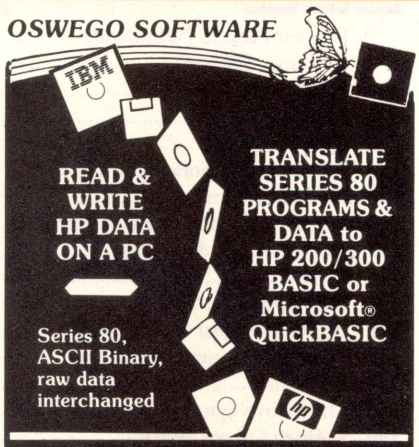
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[CALENDAR]

[OCTOBER]

9/30-4: The ADUS Workstation User's Group is sponsoring a conference at the Marriott Hotel in San Diego, CA.

8-9: All four HP Regional Users Groups in Texas have joined to organize a combined conference at the San Luis Hotel on Galveston Island. Call (713) 425-5957.

11-12: NEVCAL'90, a regional user group conference is being held at Caesar's Lake Tahoe Resort Hotel/Casino, Stateline, NV. For vendor registration call (916) 544- 6474, ext. 281; for paper submission call Glen Gollick, (916) 444-9304.

18-19: Patricia Seybold's Office Computing Group and The Object Management Group are sponsoring "The World of Object-Oriented Applications," at the Rai Congrescentrum, Amsterdam, The Netherlands. Fee $750. Call Deborah Hay (800) 826-2424 or (617) 742-5200.

[NOVEMBER]

9: The St. Louis Regional Users Group (SLRUG) is sponsoring its first Midwest Regional Conference and Vendor Show at the Oakland Park Inn, St. Louis, MO. Call (314) 447-SLUG.

28: The British Columbia Regional users Group (BCRUG) is holding a dinner meeting. Discussion topic is "Disaster Recovery & Backup Options." Call Randy Cliff, (604) 661-8048.

28-30: NCGA, is sponsoring "Global Advanced Manufacturing Solutions," in Paris, France. The seminar will examine the modernization of European manufacturing facilities through the use of CAD/CAM technology. Call (703) 698-9600.

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